KV-V1410A/V1410D/V1410E

RM-846

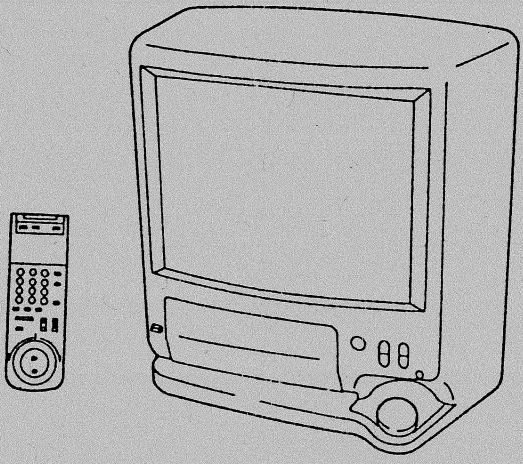
SERVICE MANUAL

ET Model

KV-V1410A
Chassis No. SCC-G53A-A

AEP Model

KV-V1410D
Chassis No. SCC-G31A-A
KV-V1410E
Chassis No. SCC-G31B-A



BC-2 CHASSIS

- Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENTS Ⅲ for MECHANICAL ADJUSTMENTS. (9-973-211-11)

MODELS OF THE SAME SERIES	
KV-V1410A/V1410D/V1410E	

SPECIFICATIONS

TV Section

Television system	B/G
Colour system	PAL/NTSC4.43
Channel coverage	See "Receivable channels and channel display" at the bottom.
Picture tube	Trinitron Approx. 37 cm (14 inches)
Aerial in	75-ohm aerial socket for VHF/UHF
Intermediate frequency	Video: 38.9MHz Audio: 33.4MHz

Video Section

Format	VHS standard
Video recording system	Rotary 2-head helical scanning system
Audio recording system	Monaural
Video signal	PAL
Tape speed	PAL: 23.39 mm/sec. NTSC (playback only): 33.35 mm/sec.
Maximum recording time	240 minutes with E-240

Inputs and Outputs

Inputs	LINE IN VIDEO: phono jack (1) 1 Vp-p, 75 ohms, unbalanced, sync negative LINE IN AUDIO: phono jack (1) Input level: 500 mVrms (100% modulation) EURO-AV: 21-pin
Output	EURO-AV: 21-pin
Headphones jack	Monaural minijack

— continued on next page —

MICROFILM

TRINITRON® COLOR VIDEO TV

SONY®

General

Clock	Quartz locked
Power back up	Approx. 1 hour or less
Power requirements	230 V AC, 50 Hz
Power consumption	KV-V1410A: 65W KV-V1410D/V1410E: 75W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	–20°C to 60°C (–4°F to 140°F)
Dimensions	Approx. 391 x 409 x 443 mm (w/h/d) (15½ x 16⅛ x 17½ inches)
Mass	Approx. 15.5 kg (34 lb 3 oz)

Accessories supplied

Remote Commander (1)
R6 (size AA) batteries (2)

Note

Design and specifications are subject to change without notice.

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Receivable Channels and Channel Display

	Channel coverage	Channel display
Western European countries	E-2 to E-12 E-21 to E-69	C02 to C12 C21 to C69
Italy	A, B, C, D, E, F, G, H	C13, C14, C15, C16, C17, C18, C19, C20
CATV	S-1 to S-41	S01 to S41
Belgian CATV	S-01 to S-05	S42 to S46

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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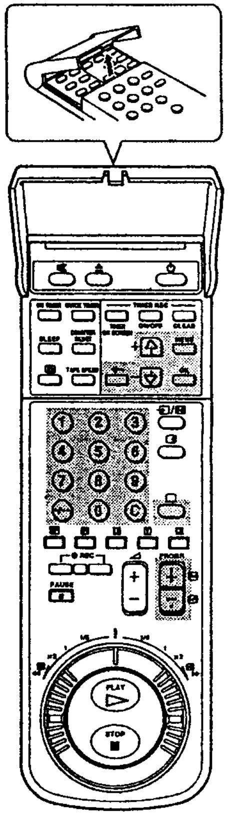
SECTION 1
GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remein as in the manual.

1-1. TUNING IN TO TV STATIONS



You should preset the channels (up to 60 channels) by choosing either the automatic or manual method.
The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you want to allocate programme numbers to the channels one by one.

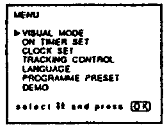
Before you begin

- Depress the ⏻ switch on the video TV to switch it on.
  If the ⏻ lamp on the video TV is lit in red, press ○, PROGR +/– or a number button on the Remote Commander.
- Lift the flap on the Remote Commander and locate Menu operation buttons.

Selecting the Language on the Menu

You can select one of several languages for the menu and on-screen information.
The initial setting is English.

1 Press MENU.
The main menu appears.

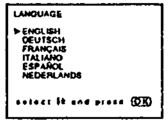


MENU

▶VISUAL MODE
ON TIMER SET
CLOCK SET
TRACKING CONTROL
LANGUAGE
PROGRAMME PRESET
DEMO

select ⇅ and press OK

2 Move the cursor (▶) to "LANGUAGE" with + ⇧ or – ⇩ and press OK.
The LANGUAGE menu appears.



LANGUAGE

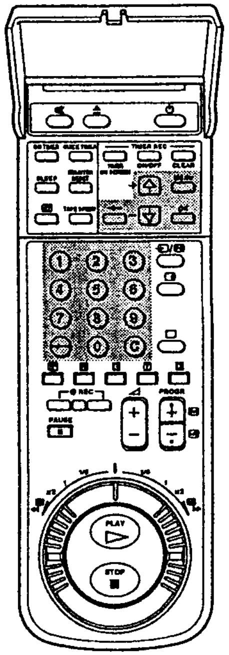
▶ENGLISH
DEUTSCH
FRANÇAIS
ITALIANO
ESPAÑOL
NEDERLANDS

select ⇅ and press OK

3 Select the language you want with + ⇧ or – ⇩ and press OK.

4 Press MENU to go back to the original screen.

Note on the DEMO function
If you choose "DEMO" on the main menu and press OK, you can see a sequential demonstration on the menu functions on the screen. Press any button (e.g. MENU) to stop this function.

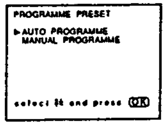


To stop automatic channel presetting
Press ⬅ on the Remote Commander.

Presetting Channels Automatically

1 Press MENU to display the main menu.

2 Move the cursor to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.

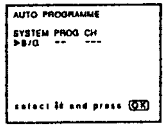


PROGRAMME PRESET

▶AUTO PROGRAMME
MANUAL PROGRAMME

select ⇅ and press OK

3 Move the cursor to "AUTO PROGRAMME" with + ⇧ or – ⇩ and press OK.
The AUTO PROGRAMME menu appears.



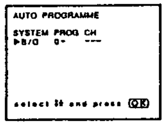
AUTO PROGRAMME

SYSTEM PROG CH
▶B/G -- ---

select ⇅ and press OK

4 Press OK.
The first element of the PROG position turns red.

5 Select the programme (number button) from which you want to start presetting.
Select the first element of the double-digit number with + ⇧ or – ⇩ or the number buttons (e.g. For "06", select "0") and press OK.
The second element turns red.



AUTO PROGRAMME

SYSTEM PROG CH
▶B/G 0- ---

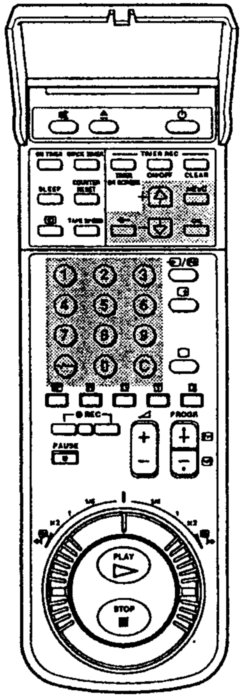
select ⇅ and press OK

6 Select the second element of the double-digit number with + ⇧ or – ⇩ or the number buttons (e.g. For "06", select "6") and press OK.
The first element of the CH position turns red.

7 Select C (to preset a regular channel) or S (to preset a cable channel) with + ⇧ or – ⇩ or C (Press C once for "C" and twice for "S") and press OK.

8 Select the first and second elements of the double-digit number of the channel in the same way as in steps 5 and 6.
Presetting starts from the selected programme position.
The preset programme and channel numbers are displayed on the screen in sequence. When presetting is finished, the PROGRAMME PRESET menu reappears. All available channels are now stored on successive number buttons.

Presetting Channels Manually



For programme positions beyond 6

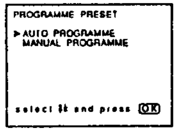
The display scrolls by pressing – ⇩ repeatedly.

If you have made a mistake

Press ← to go back to the previous position.

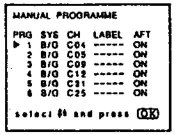
1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.



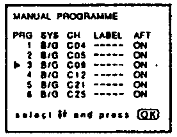
```
PROGRAMME PRESET

▶AUTO PROGRAMME
 MANUAL PROGRAMME





select ⇕ and press OK
```

3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK.
The MANUAL PROGRAMME menu appears.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL  AFT
▶ 1  B/G  C04  ------ ON
  2  B/G  C05  ------ ON
  3  B/G  C09  ------ ON
  4  B/G  C12  ------ ON
  5  B/G  C21  ------ ON
  6  B/G  C25  ------ ON

select ⇕ and press OK
```

4 Using + ⇧ or – ⇩ , move the cursor to the programme position (number button) to which you want to preset a channel, and press OK.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL  AFT
  1  B/G  C04  ------ ON
  2  B/G  C05  ------ ON
▶ 3  B/G  C09  ------ ON
  4  B/G  C12  ------ ON
  5  B/G  C21  ------ ON
  6  B/G  C25  ------ ON

select ⇕ and press OK
```

5 Press OK.
The CH position turns red.

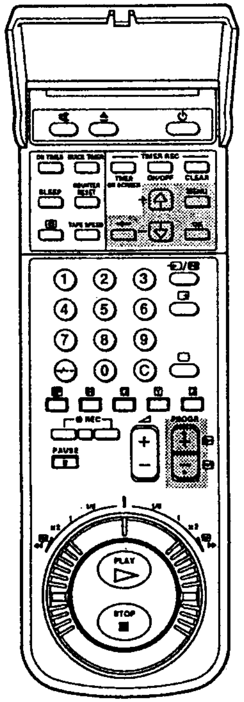
6 Search for the channel with + ⇧ (up) or – ⇩ (down).
The channel number starts counting up or downwards. When a channel is found, it stops.
If you want to preset this channel, press OK. If not, press + ⇧ or – ⇩ to search for another channel.

You can also select the channel number directly with the number buttons. Press C (once for regular channels, twice for cable channels), number buttons (e.g. For 06, press 0 and 6), then OK.

7 Repeat steps 4 to 6 to preset other channels.

8 After you finish presetting, press MENU to go back to the original screen.

Skipping Programme Positions



For programme positions beyond 6

The display scrolls by pressing – ⇩ repeatedly.

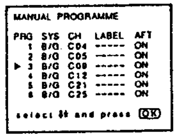
You can skip unused programme positions when selecting programme with PROGR +/– buttons. However, the skipped programmes may still be called up when you select them with the number buttons.

1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.

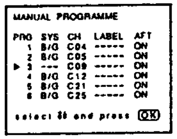
3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK.
The MANUAL PROGRAMME menu appears.

4 Using + ⇧ or – ⇩ , move the cursor to the programme position which you want to skip and press OK.
The "SYS" position turns red.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL  AFT
  1  B/G  C04  ------ ON
  2  B/G  C05  ------ ON
▶ 3  B/G  C09  ------ ON
  4  B/G  C12  ------ ON
  5  B/G  C21  ------ ON
  6  B/G  C25  ------ ON

select ⇕ and press OK
```

5 Press + ⇧ or – ⇩ until "---" appears in the "SYS" position and press OK.

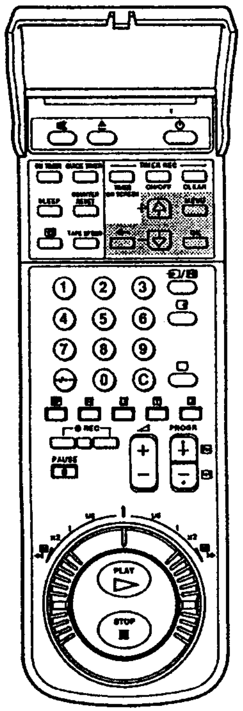


```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL  AFT
  1  B/G  C04  ------ ON
  2  B/G  C05  ------ ON
▶ 3  ---  C09  ------ ON
  4  B/G  C12  ------ ON
  5  B/G  C21  ------ ON
  6  B/G  C25  ------ ON

select ⇕ and press OK
```

When you select programmes using the PROGR +/– buttons, the programme position is skipped.

6 Repeat steps 4 and 5 to skip other programme positions.

7 Press MENU to go back to the original screen.



If you have made a mistake
Press ← to go back to the previous position.

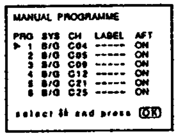
Captioning a TV Station Name

You can name a channel using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. MTV). Using this function, you can easily identify which channel you are watching.

1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.

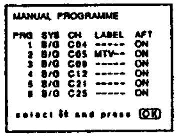
3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK.
The MANUAL PROGRAMME menu appears.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
▶ 1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
  3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇕ and press (OK)
```

4 Using + ⇧ or – ⇩ , move the cursor to the programme position you want to caption and press OK repeatedly until the first element of the "LABEL" position turns red.

5 Select a letter or number with + ⇧ or – ⇩ and press OK.
The next element turns red. Select other characters in the same way. For the element you want to leave blank, select "-" and press OK.

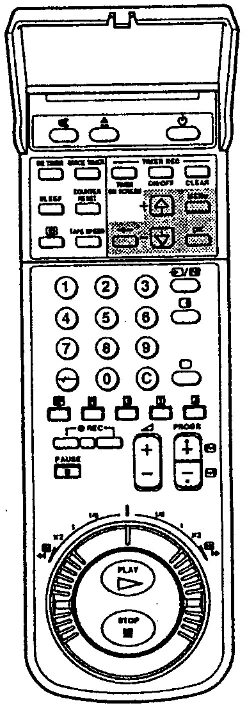


```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  MTV---  ON
  3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇕ and press (OK)
```

6 After selecting all the characters, press OK repeatedly until the cursor appears by the next programme position. Now the caption you chose is stored.

7 Repeat steps 4 to 6 to caption other channels.

8 Press MENU to go back to the original screen.



To reactivate automatic fine-tuning (AFT)
Repeat from the beginning and select "ON" in step 5.

Manual Fine-Tuning

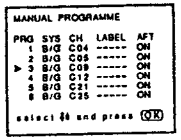
Normally, the automatic fine-tuning (AFT) is already working. However, if the picture of a programme is distorted, you can use the manual fine-tuning function to obtain better picture reception.

1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.

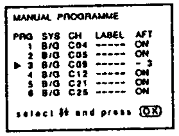
3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK.
The MANUAL PROGRAMME menu appears.

4 Using + ⇧ or – ⇩ , move the cursor to the programme position corresponding to the channel which you want to manually fine-tune, and press OK repeatedly until the AFT position turns red.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
▶ 3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇕ and press (OK)
```

5 Fine-tune the channel with + ⇧ or – ⇩ so that you get the best TV reception. As you press these buttons, the frequency changes from –15 to +15.



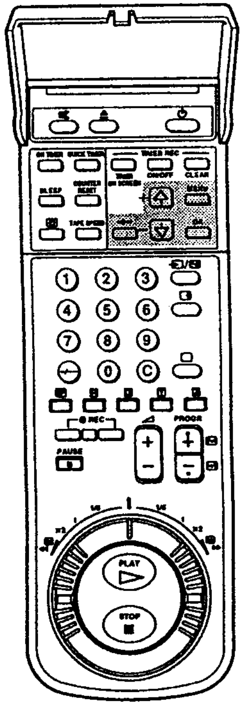
```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
▶ 3  B/G  C09  ------  - 3
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇕ and press (OK)
```

6 After fine-tuning, press OK.
The cursor appears beside the next programme position. Now the fine-tuned level is stored.

7 Repeat steps 4 to 6 to fine-tune other channels.

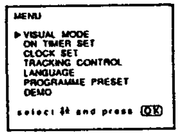
8 Press MENU to go back to the original screen.

1-2. SETTING THE CLOCK

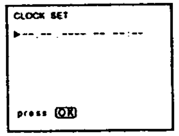


You need to set the clock for using timer recording and quick-timer recording functions. Before you begin, lift the flap on the Remote Commander and locate the Menu operation buttons.

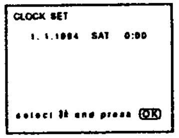
1 Press MENU to display the main menu.


MENU
▶VISUAL MODE
ON TIMER SET
CLOCK SET
TRACKING CONTROL
LANGUAGE
PROGRAMME PRESET
DEMO
select ⇅ and press OK

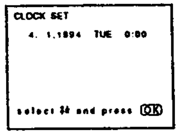
2 Move the cursor (▶) to "CLOCK SET" with + ⇧ or – ⇩ and press OK.
The CLOCK SET menu appears.


CLOCK SET
▶--.--.---- -- --:--
press OK

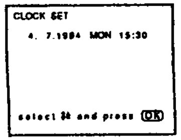
3 Press OK to start setting the clock.
The day section turns red.


CLOCK SET
1. 1.1994 SAT 0:00
select ⇅ and press OK

4 Set the day with + ⇧ or – ⇩ and press OK.
The month section turns red.


CLOCK SET
4. 1.1994 TUE 0:00
select ⇅ and press OK

5 Using + ⇧ or – ⇩ and OK, set the month, year, hour and minute in the same way as in step 4.


CLOCK SET
4. 7.1994 MON 15:30
select ⇅ and press OK

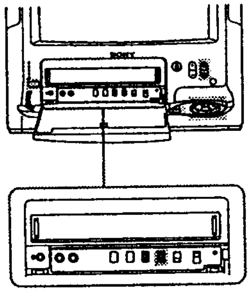
6 After setting the minute, press OK.
The clock starts working.

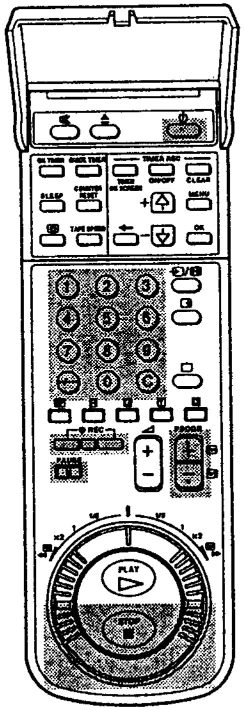
7 Press MENU to go back to the original screen.

If you have made a mistake
Press ⇐ to go back to the previous position.

If power is interrupted or you disconnect the AC power cord for more than one hour
You have to re-set the clock.

1-3. RECORDING TV PROGRAMMES





Recording TV Programmes

1 Press ⏻ on the video TV.
When the STANDBY lamp is lit in red, skip this step.

2 Insert a cassette with a safety tab.

3 Select the programme position with PROGR+/–. You can also use number buttons on the Remote Commander. For double-digit numbers (e.g.14), first press -/--, then press 1 and 4.

4 Press REC ●.
When you use the Remote Commander, press two REC ● buttons at the same time.
The REC lamp on the front of the video TV lights up and recording begins.

To stop recording

Press STOP ■.
When the tape reaches the end, the video TV rewinds the tape automatically to the beginning, then stops. This function does not work when the power of the video TV is off.

To pause recording

Press PAUSE II.
To resume recording, press PAUSE II again.

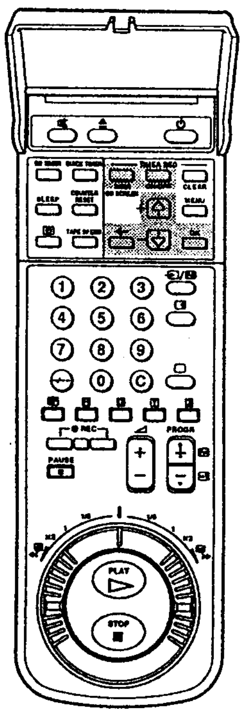
You can cut out an unwanted scene during recording with this button.
1 Press PAUSE II when an unwanted scene appears on the screen.
Recording pauses.
2 Press PAUSE II again to release the pause mode at the desired scene.
Recording resumes from the point set in step 1.

When the recording pause mode lasts for about 5 minutes, the video TV stops recording to protect the quality of video tapes.

Recording with the TV Off

Press ⏻ on the Remote Commander or ⏻ on the video TV.
The TV screen is turned off and the STANDBY lamp lights up.
The video TV continues recording.

1-4. RECORDING TV PROGRAMMES USING THE TIMER



The Timer Recording function allows you to preset your video TV to record up to six programmes within a one-month period.

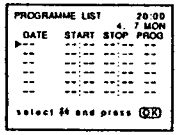
Before you begin

- Switch on the video TV.
- Make sure that the time and date clock are set. If not, the message "Please set the clock" is displayed on the screen. Refer to "Setting the clock" on page 12.
- Make sure that the loaded cassette has its safety tab. If a cassette without safety tab is loaded, the message "Tape with safety tab is required for recording" is displayed.

Setting the Timer

Example: Here is how to record a programme broadcast on programme position 26 from 20:15 to 21:55 on Saturday, 6th July 1994.

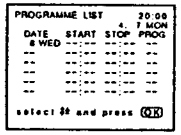
1 Press TIMER ON SCREEN.
The PROGRAMME LIST appears.



```
PROGRAMME LIST          20:00
                      4. 7 MON
 DATE     START  STOP   PROG
▶--       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --

select ⇅ and press OK
```

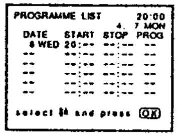
2 Press OK.
Today's date coloured red appears.

3 Press + ⇧ until "6 WED" appears.
For daily and weekly recording see "Daily and weekly recording" on page 23.

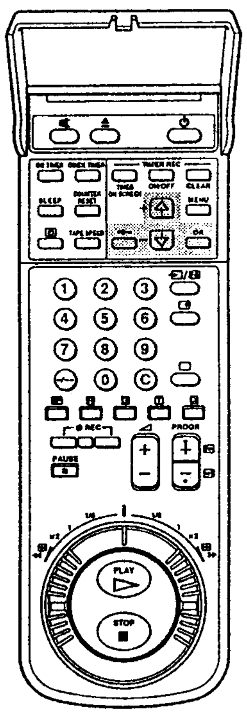


```
PROGRAMME LIST          20:00
                      4. 7 MON
 DATE     START  STOP   PROG
  6 WED   --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --

select ⇅ and press OK
```

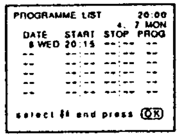
4 Press OK, then set the hour of the recording start time to "20" with + ⇧ or – ⇩ .



```
PROGRAMME LIST          20:00
                      4. 7 MON
 DATE     START  STOP   PROG
  6 WED   20:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --

select ⇅ and press OK
```

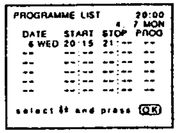


5 Press OK, then set the minute of the recording start time to "15" with + ⇧ or – ⇩ .



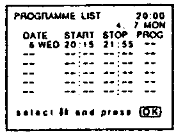
```
PROGRAMME LIST          20:00
                      4. 7 MON
 DATE     START  STOP   PROG
  6 WED   20:15  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --

select ⇅ and press OK
```

6 Press OK, then set the hour of the recording stop time to "21" with + ⇧ or – ⇩ .



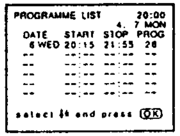
```
PROGRAMME LIST          20:00
                      4. 7 MON
 DATE     START  STOP   PROG
  6 WED   20:15  21:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --

select ⇅ and press OK
```

7 Press OK, then set the minute of the recording stop time to "55" with + ⇧ or – ⇩ .



```
PROGRAMME LIST          20:00
                      4. 7 MON
 DATE     START  STOP   PROG
  6 WED   20:15  21:55   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --

select ⇅ and press OK
```

8 Press OK, then set the programme position to "26" with + ⇧ or – ⇩ .



```
PROGRAMME LIST          20:00
                      4. 7 MON
 DATE     START  STOP   PROG
  6 WED   20:15  21:55   26
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --
 --       --:--  --:--   --

select ⇅ and press OK
```

9 Press OK.
The cursor (▶) appears at the left margin.

10 When you want to set other programmes, press – ⇩ to move down the cursor to the next line, then repeat steps 2 to 9.

11 Press TIMER REC ON/OFF.
The TIMER REC lamp on the front of the video TV lights up and the video TV enters timer recording standby mode.

Press TIMER ON SCREEN to erase the PROGRAMME LIST.
Turn off the video TV if you do not want to watch the TV.
The video TV turns on automatically and starts recording at the preset start time, and goes off at the preset stop time.

If you have made a mistake during timer setting

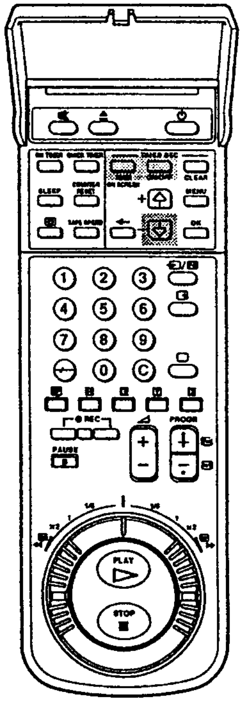
Press ← to go back to the previous position and correct the setting.

If you try to enter the recording start time prior to the current time

All the items of the setting will be erased.

If you try to do incorrect operation

The video TV displays a message on the screen to interrupt your setting.



Daily/weekly recording

You can preset your video TV to record the same programme every day of the week (daily recording) or the same programme on the same day every week (weekly recording). Press – ⇩ in step 3 until the desired setting appears in the "DATE" position. With each press, the setting changes as follows:

4 (today) → MON-SUN → MON-SAT → MON-FRI → EVERY SAT → EVERY FRI → EVERY THU → EVERY WED → EVERY TUE → EVERY MON → EVERY SUN → 3 (next month) → 2......

To stop timer recording

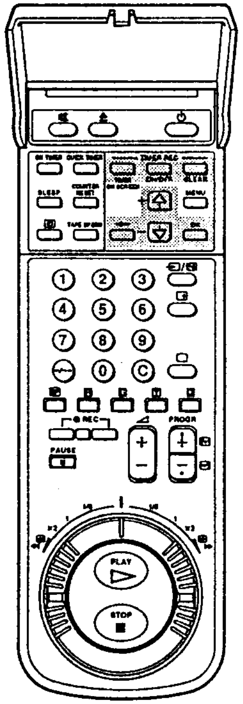
Press TIMER REC ON/OFF.

Using the Video TV before Timer Recording Starts

You can watch a TV programme, check the timer settings and reset the counter in timer recording standby mode. However, press TIMER REC ON/OFF to turn off the TIMER REC lamp on the front of the video TV to do the following operations:

- ejecting the cassette
- using the tape operation buttons
- changing or canceling the timer settings

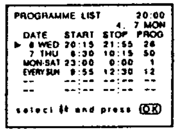
Remember to press TIMER REC ON/OFF again to make the TIMER REC lamp light after the above operations.



Checking the Timer Settings

You can display the list of the timer settings which you preset.

Press TIMER ON SCREEN.
The PROGRAMME LIST appears.



```
PROGRAMME LIST            20:00
                       4.  7 MON
  DATE     START   STOP   PROG
▶  6 WED   20:15   21:55   28
   7 THU    8:30   10:15   50
  MON-SAT  23:00    0:00    1
  EVERY SUN 9:55   12:30   12
  --       --:--   --:--   --
  --       --:--   --:--   --

select ⇕ and press OK
```

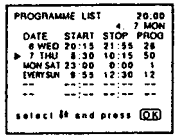
Press TIMER ON SCREEN again to erase the PROGRAMME LIST.

Changing or Canceling the Timer Settings

1 Press TIMER REC ON/OFF to turn off the TIMER REC lamp on the front of the video TV.

2 Press TIMER ON SCREEN to display the PROGRAMME LIST.

3 Select the setting you want to change or cancel with + ⇧ or – ⇩ .



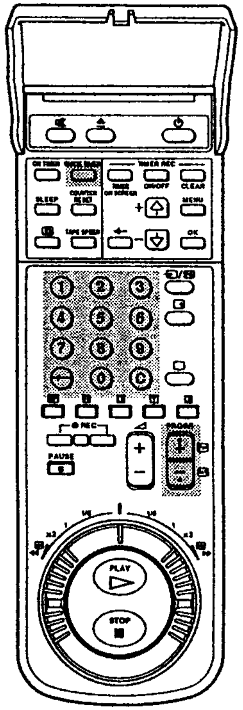
```
PROGRAMME LIST            20:00
                       4.  7 MON
  DATE     START   STOP   PROG
   6 WED   20:15   21:55   28
▶  7 THU    8:30   10:15   50
  MON SAT  23:00    0:00    1
  EVERY SUN 9:55   12:30   12
  --       --:--   --:--   --
  --       --:--   --:--   --

select ⇕ and press OK
```

4 **To change the setting**
Using + ⇧ or – ⇩ and OK, re-enter all the items.
Refer to "Setting the timer" steps 2 to 9 on pages 21 and 22.

To cancel the setting
Press TIMER REC CLEAR.

5 Press TIMER ON SCREEN to go back to the original screen.

6 If there are other timer settings on the list, press TIMER REC ON/OFF to set the video TV to timer recording standby mode.



Recording Using the Quick-Timer

You can preset your video TV to start timer recording immediately and to automatically stop recording after a specific time period.
If you have not set the clock, quick-timer recording cannot be done.

If you are recording

1 Press QUICK TIMER on the Remote Commander.
The "QUICK TIMER 0:00" appears on the screen.

2 Press QUICK TIMER repeatedly to select the recording time period. With each press, the time period changes as follows:

0:00 → 0:30 → 1:00 → .... → 3:30 → 4:00

Even if you switch off the video TV, it continues recording. After the selected time period has elapsed, recording stops automatically.

If you are not recording

1 Switch on the video TV.

2 Insert a cassette with its safety tab.

3 Select the programme position which you want to record.

4 Press QUICK TIMER on the Remote Commander.
The "QUICK TIMER 0:00" appears on the screen.

5 Press QUICK TIMER repeatedly to select the recording time period. With each press the time period changes as follows:

0:00 → 0:30 → 1:00 → .... → 3:30 → 4:00

The time period turns yellow and recording starts.
Even if you switch off the video TV, it continues recording.
When the preset time period has elapsed, the video TV stops recording.

To change the recording time period after quick-timer recording begins

Press QUICK TIMER until the desired time period appears.

To display the remaining time period during quick-timer recording

Press ⊕. The recording time period decreases minute by minute.

To stop quick-timer recording

Press TIMER REC ON/OFF.

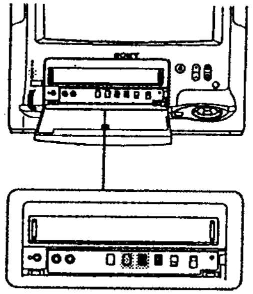
Timer Recording with VPS Signals (KV-V1410D Models only)

The German broadcasting system transmits VPS (Video Programme System) signals with the TV programmes. These signals assure you that your timer recordings are made regardless of broadcast delays, early starts, or broadcast interruptions. For example, if an urgent news bulletin interrupts a regular programme, recording stops. As soon as the interrupted programme resumes, recording starts again.

1 If the TIMER REC lamp is lit on the front panel, press TIMER REC ON/OFF to turn it off.

2 Before setting the timer, press VPS on the inside of the front panel so that the VPS lamp lights up.

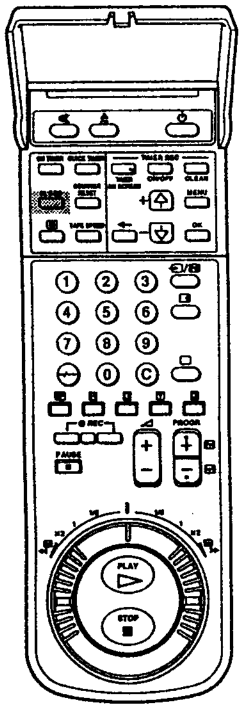
3 Set the timer following the steps in "Setting the timer" (pages 21 to 23).



Notes on VPS recording

- If recording times overlap due to a VPS time shift, the programme that was broadcast first has priority. Recording of the second programme begins when the first programme has finished.
- If the video TV could not receive a VPS signal because it was too weak or because the station failed to transmit VPS signals, timer recording is made without the VPS function.

1-5. SWITCHING OFF AUTOMATICALLY —SLEEP TIMER



You can automatically switches the video TV into standby mode after a selected time period.

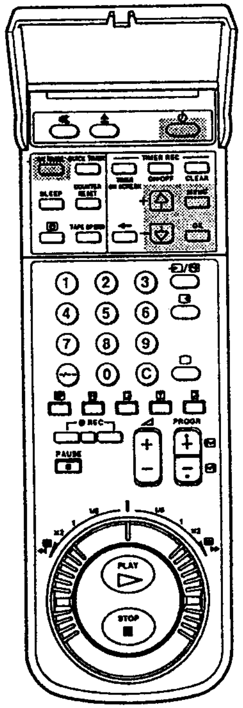
Press SLEEP.
With each press, the time period (in minutes) changes as follows:

OFF → 30 → 60 → 90

One minute before the TV switches into standby mode, a message "Good night" is displayed on the screen.

To cancel the timer
Press SLEEP to select "OFF".

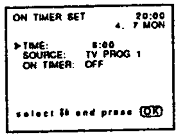
1-6. SWITCHING ON AT YOUR DESIRED TIME —ON TIMER



You can preset your video TV to automatically switch on at a desired time. You can select the TV programme or video playback to be switched on.

1 Press MENU to display the main menu.

2 Move the cursor to "ON TIMER SET" with + ⇧ or – ⇩ and press OK.
The ON TIMER SET menu appears.



```
ON TIMER SET              20:00
                         4. 7 MON

▶TIME:          6:00
 SOURCE:       TV PROG 1
 ON TIMER:     OFF

select ⇕ and press OK
```

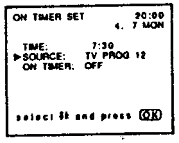
3 Press OK.
The timer setting hour section turns red.

4 Set the hour with + ⇧ or – ⇩ and press OK.
The minute section turns red.

5 Set the minutes (by one minute) with + ⇧ or – ⇩ and press OK.
The cursor appears beside "TIME."

6 Move the cursor to "SOURCE" with + ⇧ or – ⇩ and press OK.

7 Select TV or VCR ▶ (video playback) to be switched on with + ⇧ or – ⇩ and press OK.
When you select TV, select the programme position with + ⇧ or – ⇩ and press OK.



```
ON TIMER SET              20:00
                         4. 7 MON

 TIME:          7:30
▶SOURCE:       TV PROG 12
 ON TIMER:     OFF

select ⇕ and press OK
```

8 Move the cursor to "ON TIMER" with + ⇧ or – ⇩ and press OK, then select ON with + ⇧ or – ⇩ and press OK.

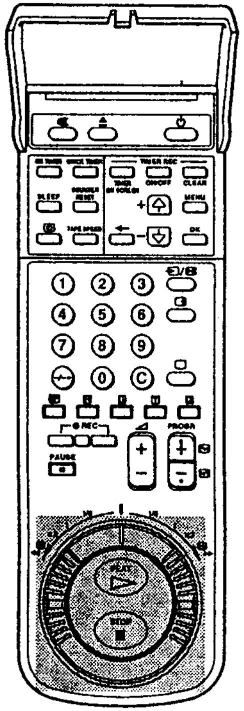
9 Press MENU to go back to the original screen.

10 Press ON TIMER.
The ON TIMER lamp on the front of the video TV lights up.
If you are not using the video TV, press ⏻ on the Remote Commander to set the video TV in standby mode.

At the preset time, the video TV automatically switches on and a message "Good morning" is displayed for five minutes.
If you do not press any button for 2 hours, the video TV automatically shuts off.

To erase the message
Press any button on the video TV or Remote Commander.

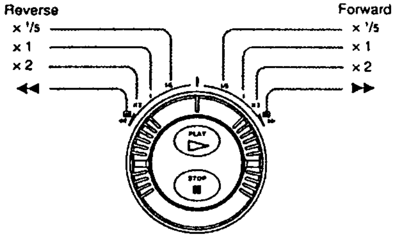
1-7. PLAYING/SEARCHING A TAPE AT VARIOUS SPEEDS



You can play a tape at various speeds. It is convenient to locate a desired scene.

Changing the Speed and Direction of Playback Using the DUAL MODE SHUTTLE Ring

During playback or playback pause, turn the ring and hold it. To play forward, turn it clockwise, and turn it counterclockwise to play in reverse. Playback speed is selected according to the turning angle as shown in the illustration below.



When you release the ring, normal playback or playback pause is resumed.

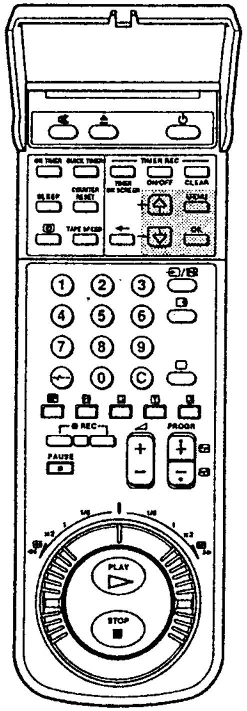
Picture Search

During playback, turn the DUAL MODE SHUTTLE ring to ◀◀ (rewind) or ▶▶ (fast forward) and hold it.
A high-speed picture appears on the TV screen.
To resume normal playback, release the DUAL MODE SHUTTLE ring at the desired scene.

Viewing the Tape in Fast Forward or Rewind Mode

Turn the DUAL MODE SHUTTLE ring clockwise to ▶▶ during fast forward or counterclockwise to ◀◀ during rewind.
While you hold the ring, you can view the picture.
When you release the ring, fast forward or rewind mode is resumed.

1-8. ENHANCING VIDEO PICTURE QUALITY



To go back to automatic tracking
Select AUTO in the TRACKING CONTROL menu with + ⇧ or − ⇩ and press OK.

Adjusting the Tracking

Adjusting the Tracking Automatically

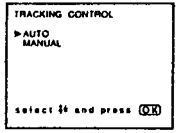
The tracking condition is automatically adjusted on this video TV. The AUTO TRACKING indicator will appear while the video TV is searching for best tracking condition.

Adjusting the Tracking Manually

If streaks or snow noise appear on the video playback picture, adjust the tracking condition manually.

1 Press MENU to display the main menu.

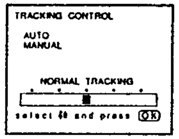
2 Move the cursor to "TRACKING CONTROL" with + ⇧ or − ⇩ and press OK.
The TRACKING CONTROL menu appears.



TRACKING CONTROL
▶AUTO
MANUAL

select ⇅ and press OK

3 Select MANUAL with + ⇧ or − ⇩ and press OK.
The tracking meter appears.



TRACKING CONTROL
AUTO
MANUAL

NORMAL TRACKING

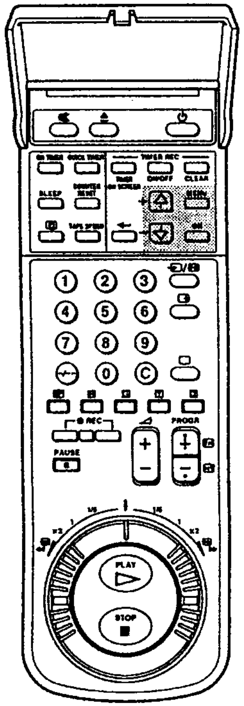
select ⇅ and press OK

4 Using + ⇧ or − ⇩ , adjust the tracking to get the best picture.

5 Press OK.
The main menu reappears.

6 Press MENU to go back to the original screen.

1-9. CONNECTING OPTIONAL EQUIPMENT

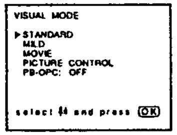


Adjusting with the Optimum Picture Control (OPC)

This function allows you to improve playback quality by adjusting the system parameter automatically according to the condition of the video tape.
This function is set to ON at the factory. To maintain better picture quality, it is advisable to leave the function on so that the OPC lamp remains lit. The OPC function works on all types of tapes, even on rental tapes.
To change the setting, use the menu display.

1 Press MENU to display the main menu.

2 Move the cursor to VISUAL MODE with + ⇧ or – ⇩ and press OK.
The VISUAL MODE menu appears.

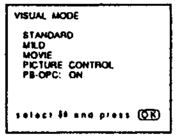

VISUAL MODE

▶STANDARD
MILD
MOVIE
PICTURE CONTROL
PB-OPC: OFF

select ⇅ and press OK

3 Move the cursor to PB-OPC with + ⇧ or – ⇩ and press OK.

4 Select ON or OFF with + ⇧ or – ⇩ and press OK.


VISUAL MODE

STANDARD
MILD
MOVIE
PICTURE CONTROL
PB-OPC: ON

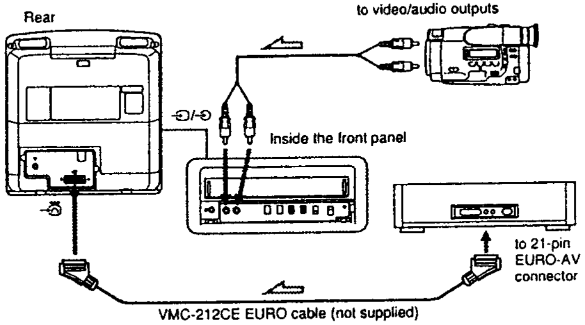
select ⇅ and press OK

5 Press MENU to erase the main menu.

About the Auto Head Cleaner

The auto head cleaner built into this set automatically cleans the video heads when a cassette is loaded or unloaded. If the effect of head cleaning is not sufficient even after a cassette has been loaded/unloaded several times, clean the heads using the Sony V-25CL video head cleaning cassette. For details on head cleaning see page 35.

Watching the Picture Input from Optional Equipment



VMC-212CE EURO cable (not supplied)

To watch the video input signal

Press ⇥ repeatedly until the desired input indicator appears on the screen.

- ⇥1 for audio/video input or RGB input (KV-V1410D models only) through the ⇥⊓ connector
- ⇥ 2 for audio/video input through the ⇥/⇥ jacks on the front

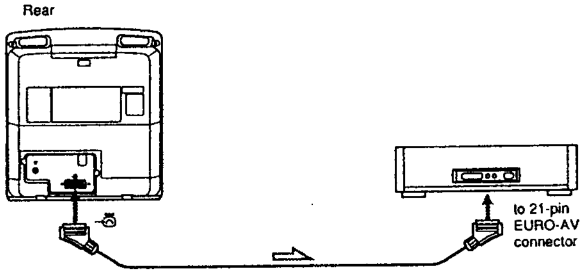
Editing with Another VCR

Using an additional VCR, you can edit a tape.

Editing from another VCR

Connections are the same as in "Watching the picture input from optional equipment."

Editing onto another VCR

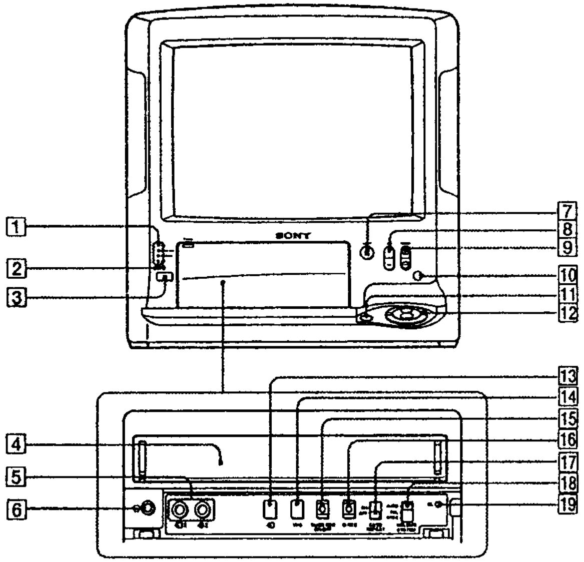


VMC-212CE EURO cable (not supplied)

1-10. INDEX TO PARTS AND CONTROLS

Video TV Set—Front

This section briefly describes the buttons and controls on the video TV set and on the Remote Commander.
For more information, refer to the pages next to each description.


SONY
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

1 Lamps
REC(recording) (page 20)
TIMER REC(recording) (page 23)
ON TIMER (page 28)
VPS (KV-V1410D models only) (page 26)

2 ⏻ (standby) lamp (page 13)

3 ⏻ (main power) switch (page 6, 13)

4 Cassette compartment (page 17)

5 ⇥/⇥ (video/audio input) jacks (page 32)

6 ∩ (headphones) jack (page 16)

7 EJECT ⏏ button (page 17)

8 ⊿ (volume) +/– buttons (page 13)

9 PROGR(programme) +/– buttons (page 13)

10 Remote sensor

11 PAUSE ▮▮ button (pages 18, 20)

12 DUAL MODE SHUTTLE ring (pages 18, 29)

13 ⇥ (input select) button (pages 16, 32)

14 VPS button (KV-V1410D models only) (page 26)

15 TIMER REC ON/OFF button (pages 23, 24)

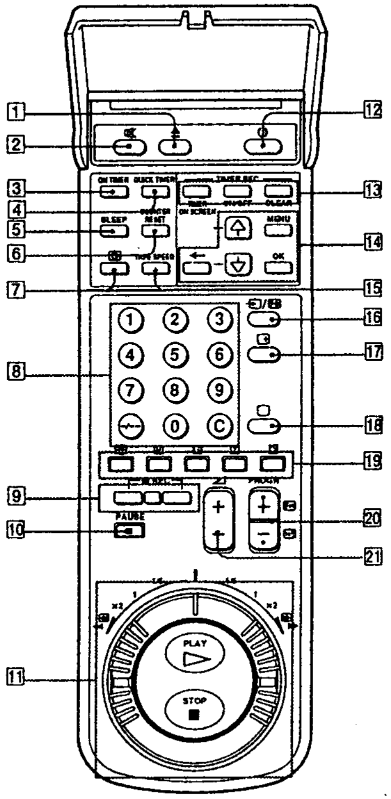
16 REC(recording) ● button (page 20)

17 AUTO REPEAT ON/OFF switch (page 19)

18 COLOUR SYSTEM switch (page 18)

19 CL (clear) button (page 34)

Remote Commander


ON TIMER
QUICK TIMER
TIMER REC
SLEEP
COUNTER RESET
ON SCREEN
ON/OFF
CLEAR
MENU
TAPE SPEED
OK
PAUSE
PROGR
PLAY
STOP
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

1 ⏏ (eject)button (page 17)

2 🔇 (muting) button (page 14)

3 ON TIMER button (page 28)

4 QUICK TIMER button (page 25)

5 SLEEP button (page 27)

6 COUNTER RESET button (page 19)

7 ⊙ (time display) button (pages 16)

8 Number button (page 7, 13)

9 REC (recording) ● buttons (page 20)

10 PAUSE ▮▮ button (pages 18, 20)

11 DUAL MODE SHUTTLE ring (pages 18, 29)

12 ⏻ (standby) button (pages 6, 13)

13 TIMER REC buttons
TIMER ON SCREEN (pages 21, 24)
ON/OFF (pages 23, 24)
CLEAR (page 24)

14 Menu operation buttons (page 6)
MENU
+⇧/–⇩
←
OK

15 TAPE SPEED button
The button does not function on this video TV.

16 ⇥ (input select)/⊕ button (pages 16, 32)

17 ⊙ (on-screen display) button (page 14, 19)

18 □ (TV power on/TV mode select) button (pages 6, 13)

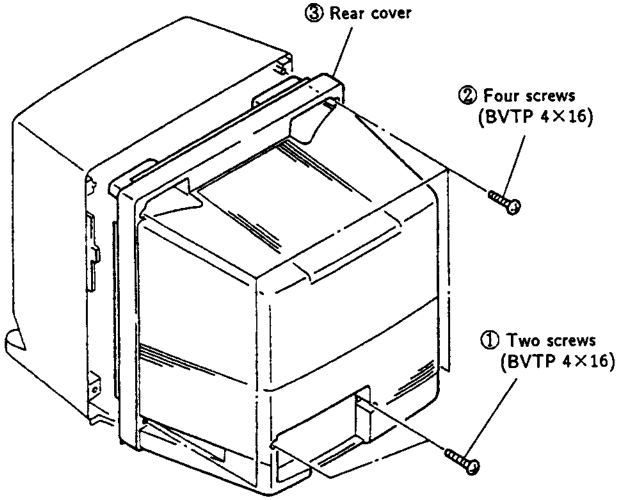
19 Teletext operation buttons
The buttons do not function on this video TV.

20 PROG (programme) +/– /⊕/⊖ buttons (page 13)

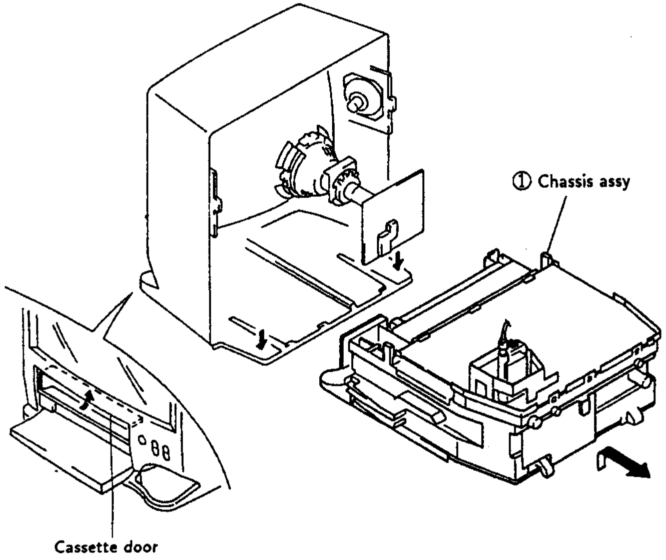
21 ⊿ (volume) +/– buttons (page 13)

SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

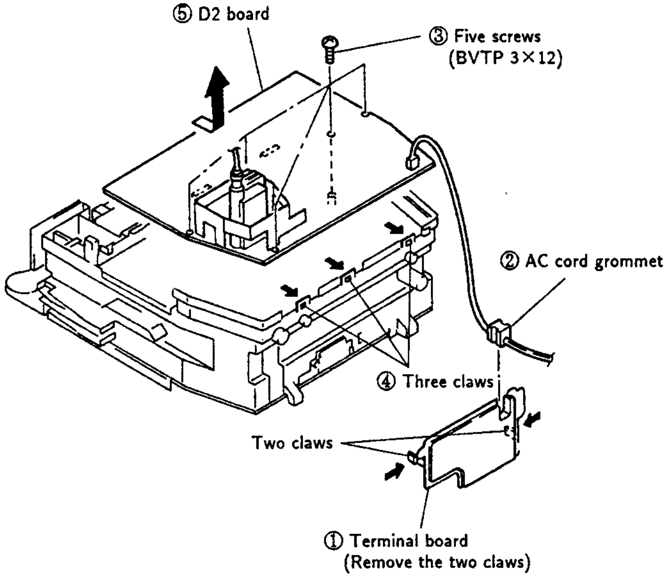

③ Rear cover
② Four screws
(BVTP 4×16)
① Two screws
(BVTP 4×16)

2-2. CHASSIS ASSY REMOVAL

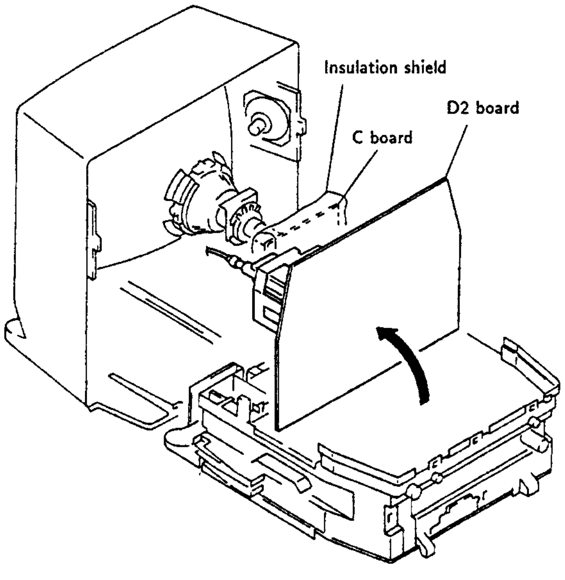

① Chassis assy
Cassette door

※ Open the casette door and fit the chassis ass'y in there.

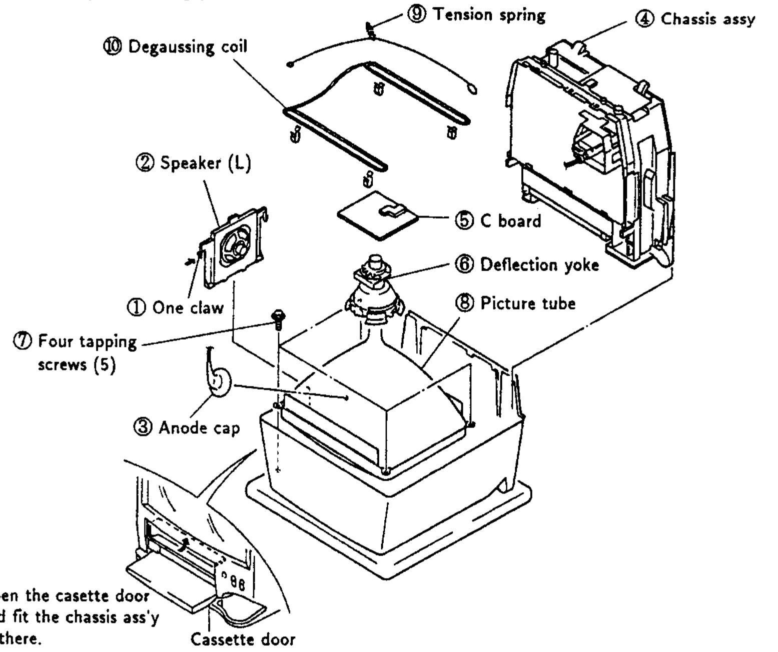
2-3. D2 BOARD REMOVAL


⑤ D2 board
③ Five screws
(BVTP 3×12)
② AC cord grommet
④ Three claws
Two claws
① Terminal board
(Remove the two claws)

2-4. SERVICE POSITION


Insulation shield
D2 board
C board

2-5. PICTURE TUBE REMOVAL

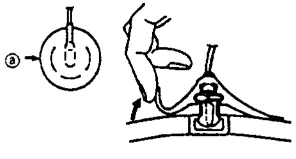

⑨ Tension spring
④ Chassis assy
⑩ Degaussing coil
② Speaker (L)
⑤ C board
⑥ Deflection yoke
① One claw
⑧ Picture tube
⑦ Four tapping
screws (5)
③ Anode cap
Cassette door

※ Open the casette door
and fit the chassis ass'y
in there.

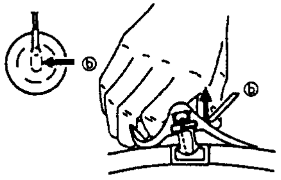
• REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

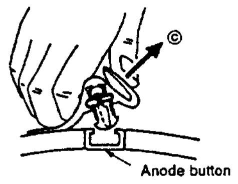
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

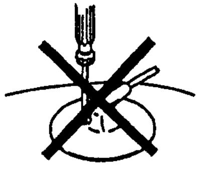
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

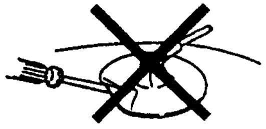
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





SECTION 3

SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

Note: Test Equipment Required.

1. Color bar Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter

The controls and switch should be set as follows unless otherwise noted :

PICTURE control·············· normal
BRIGHTNESS control········ normal

Perform the adjustments in order as follows:

Preparation:

- Feed in the white pattern signal.
- Before starting, degauss the entire screen.

3-1. BEAM LANDING

1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig.2
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward, and adjust with the purity control so that green is in the center and red and blue are at the sides evenly. (Fig.3)
5. Move the deflection yoke forward, and adjust so that the entire screen becomes green. (Fig.1)
6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. When landing at the corner is not right, adjust by using the disk magnets. (Fig.4)

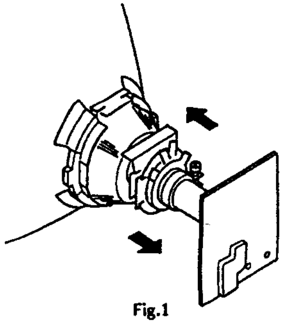


Fig.1

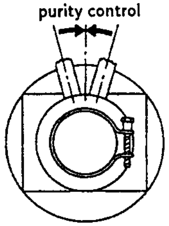


Fig.2

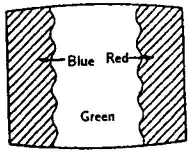
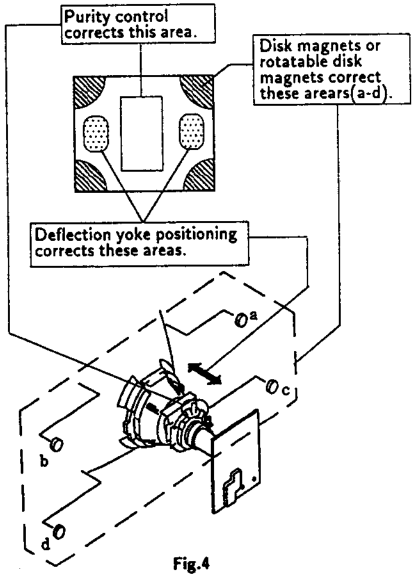


Fig.3



Purity control corrects this area.

Disk magnets or rotatable disk magnets correct these arears(a-d).

Deflection yoke positioning corrects these areas.

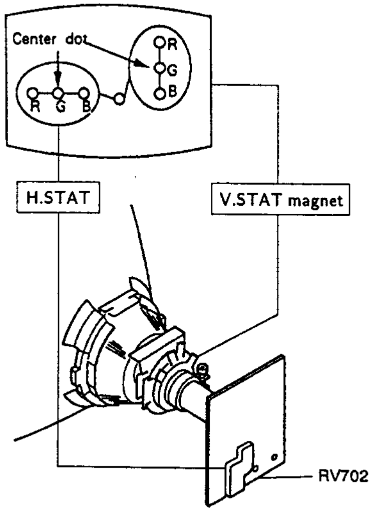
Fig.4

3-2. CONVERGENCE

Preparation:

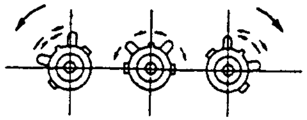
- Before starting, perform FOCUS, V.LIN and V.SIZE adjustment.
- Set BRIGHTNESS control to minimum.
- Feed in dot pattern.

(1) Horizontal and Vertical Static Convergence

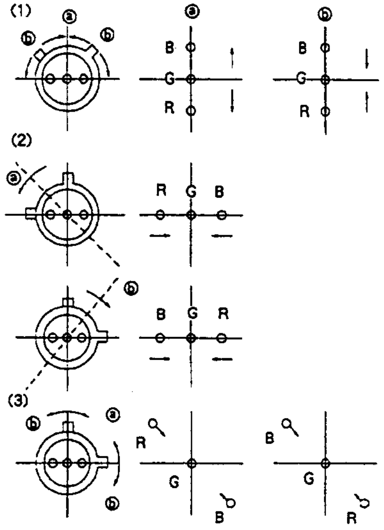


1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizon-tal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)

- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow ⓐ and ⓑ. red, green and blue dots move as shown below.

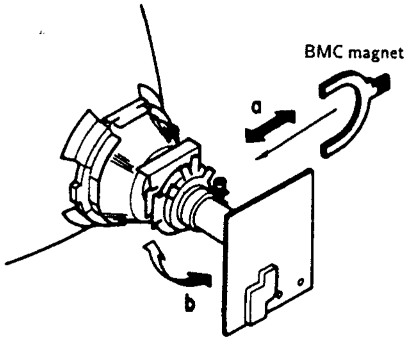


If the blue dot does not converge with red and green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

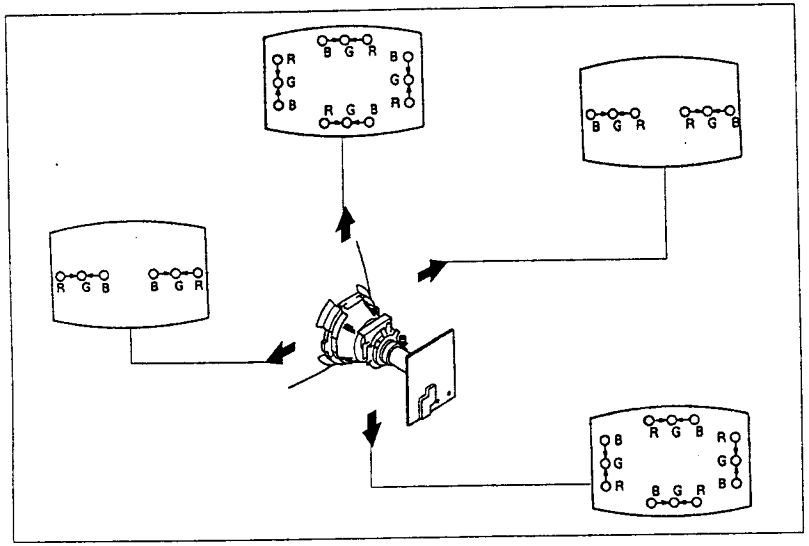


(2)Dynamic Convergence Adjustment

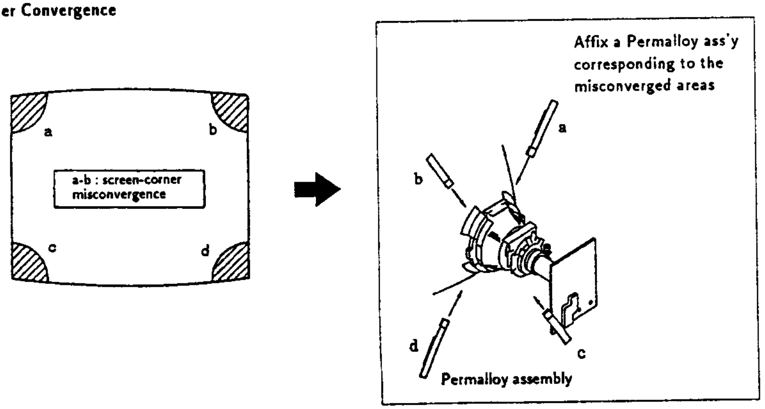
Preparation:

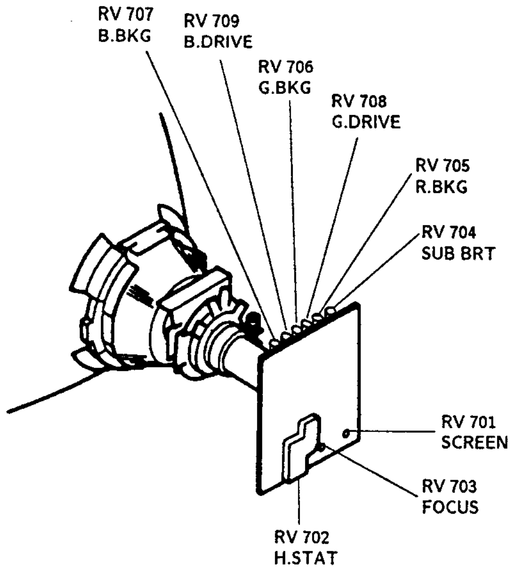
- Before starting perform Horizontal and Vertical static convergence Adjustment.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.



(3) Screen-corner Convergence


a
b
c
d
a-b : screen-corner misconvergence
Affix a Permalloy ass'y corresponding to the misconverged areas
Permalloy assembly


RV 707
B.BKG
RV 709
B.DRIVE
RV 706
G.BKG
RV 708
G.DRIVE
RV 705
R.BKG
RV 704
SUB BRT
RV 701
SCREEN
RV 703
FOCUS
RV 702
H.STAT

3-3. FOCUS

Adjust RV 703 FOCUS control for best picture.

3-4. SCREEN(G2) and WHITE BALANCE

[SCREEN(G2)]

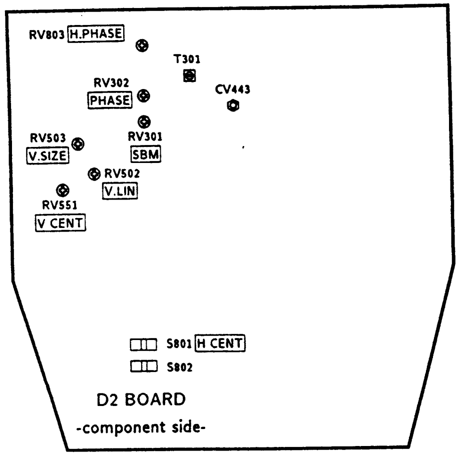
1. Input a dots pattarn.
2. Set the PIC, BRT controls at minimum.
3. Supply DC 165V by equipment into R, G, and B cathode.
4. Adjust RV701 (SCREEN) so that the raster is invisible.

[WHITE BALANCE]

1. Input a all white signl.
2. Set the PIC control to minimum and set the BRT control at normal.
3. Turn RV 708 (G.DRIVE) and RV 709 (B.DRIVE) fully clockwise.
4. Adjust BKG controls for best white balance.
5. Set the PICTURE control to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
6. Repeat steps 4 and 5.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. D2 BOARD ADJUSTMENT



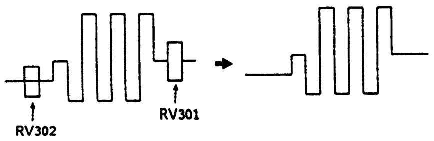
A • P • C ADJUSTMENT (CV443)……… (PAL)

1. Short circuit between pin ④ and pin ㊼ of IC301 with jumper.
2. Input the PAL color-bar signal.
3. Set the PIC, COL, and BRT controls to normal.
4. Adjust CV443 for suitable color synchronization.
5. Remove a jumper.

ANTI PAL, LINE CRAWLING ADJUSTMENT (RV301,RV302,T301)

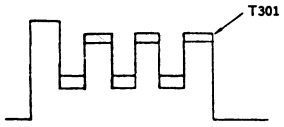
- **ANTI PAL ADJUSTMENT**

1. Input the PAL special color pattern signal.
2. Set the PIC,COL and BRT controls to normal.
3. Connect the oscilloscope to pin ㊲ of IC301. (B OUT)
4. Adjust RV301 (DELAY) and RV302(PHASE) to obtain the waveform as shown below.

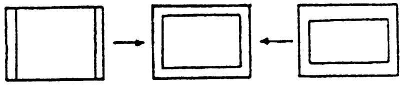


- **LINE CRAWLING ADJUSTMENT**

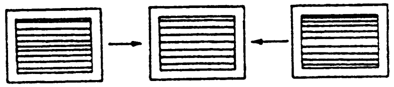
1. Input the PAL color-bar signal.
2. Set the PIC,COL and BRT controls to normal.
3. Connect the oscilloscope to pin ㊲ of IC301.
4. Adjust T301 for minimum line crawling.



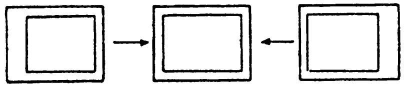
RV503 V.SIZE (VERTICAL SIZE)



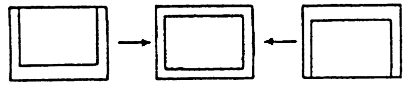
RV502 V.LIN (VERTICAL LINEARITY)



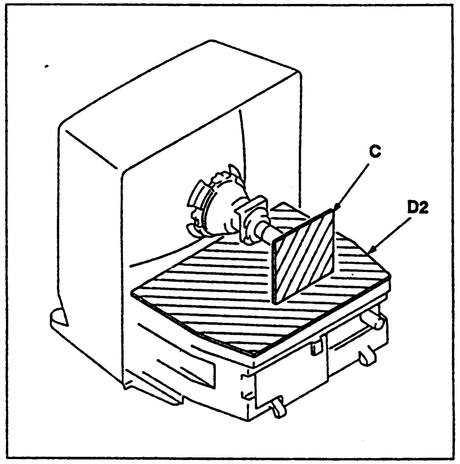
S801, S802, RV803 H.PHASE (HORIZONTAL CENTER)



RV551 V.CENT (VERTICAL CENTER)



5-2. CIRCUIT BOARDS LOCATION (TV SECTION)



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS (TV SECTION)

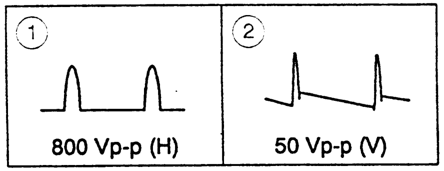
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  kΩ =1000Ω, MΩ =1000KΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power ¼ W (CHIP: 1/10W)

- ▭ : nonflammable resistor.
- △ : internal component.
- ☐ : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a 10MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- * : Can not be measured.
- Circled numbers are waveform references.
- ━━━ : B+ bus.
- ‒ ‒ ‒ : B − bus.
- ┈┈┈ : signal path.

• D2 BOARD WAVEFORMS (1/2)



Schematic diagram

D2 board (1/2) ➡

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

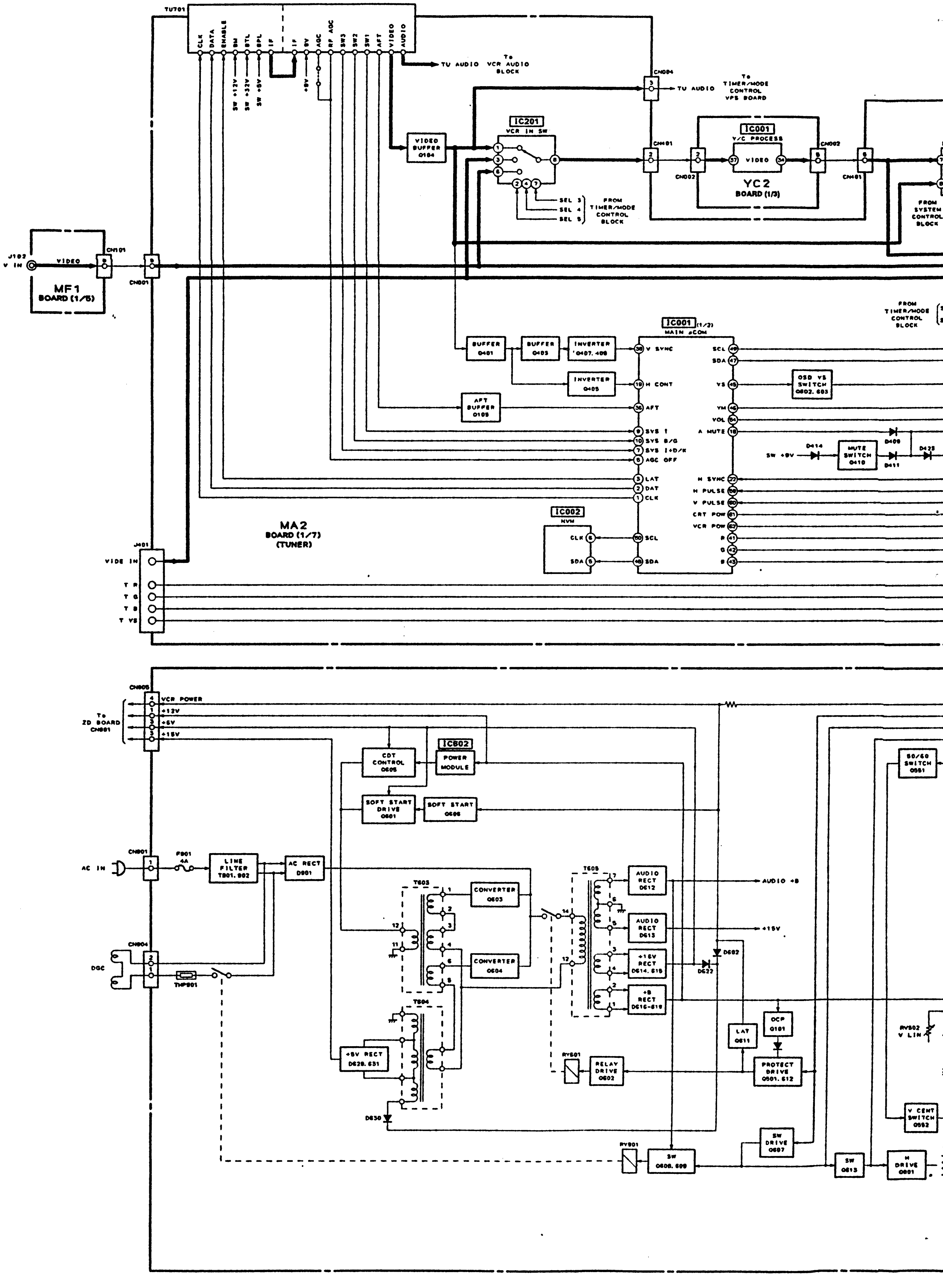
Reference information

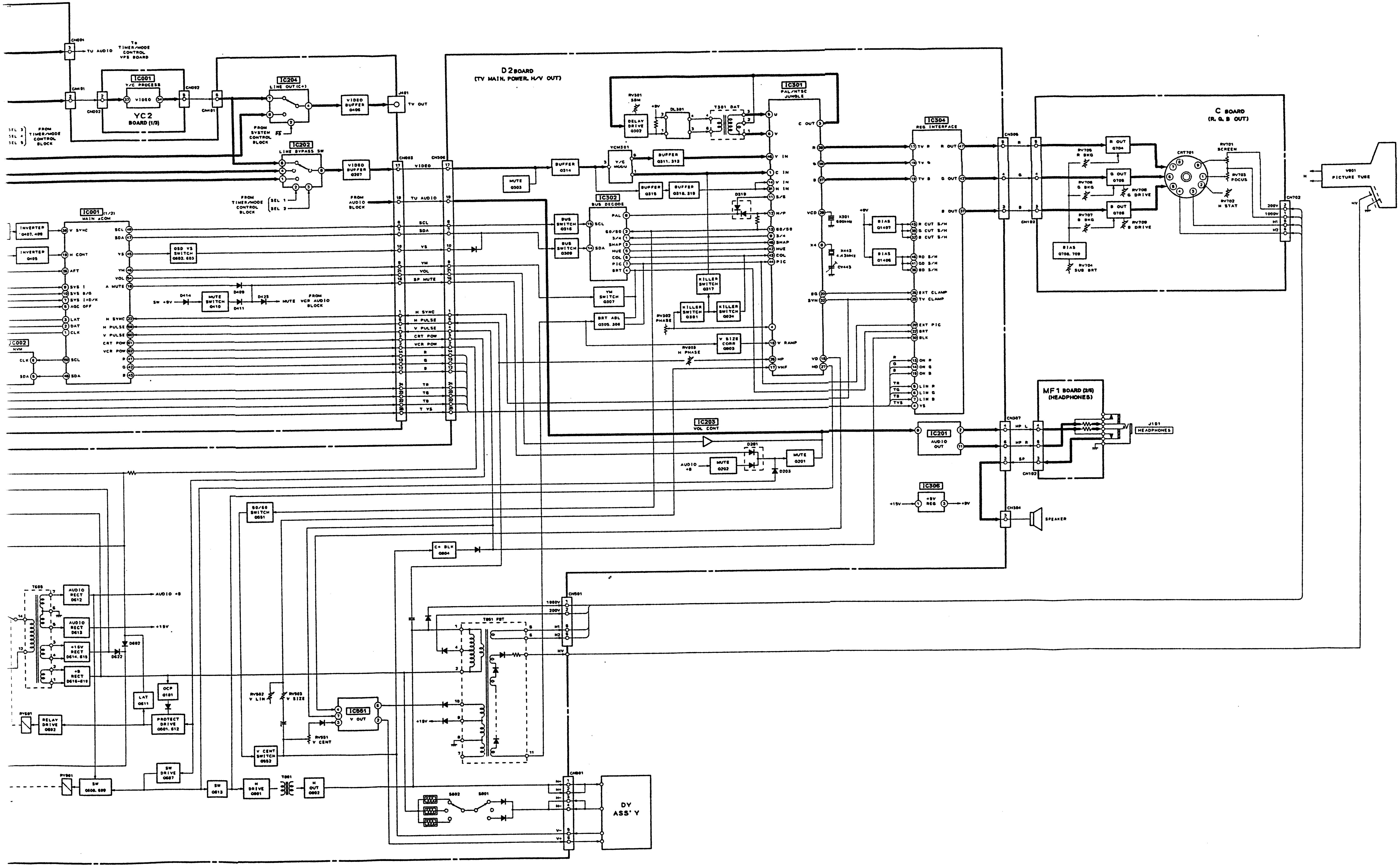
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

SECTION 2
DISASSEMBLY

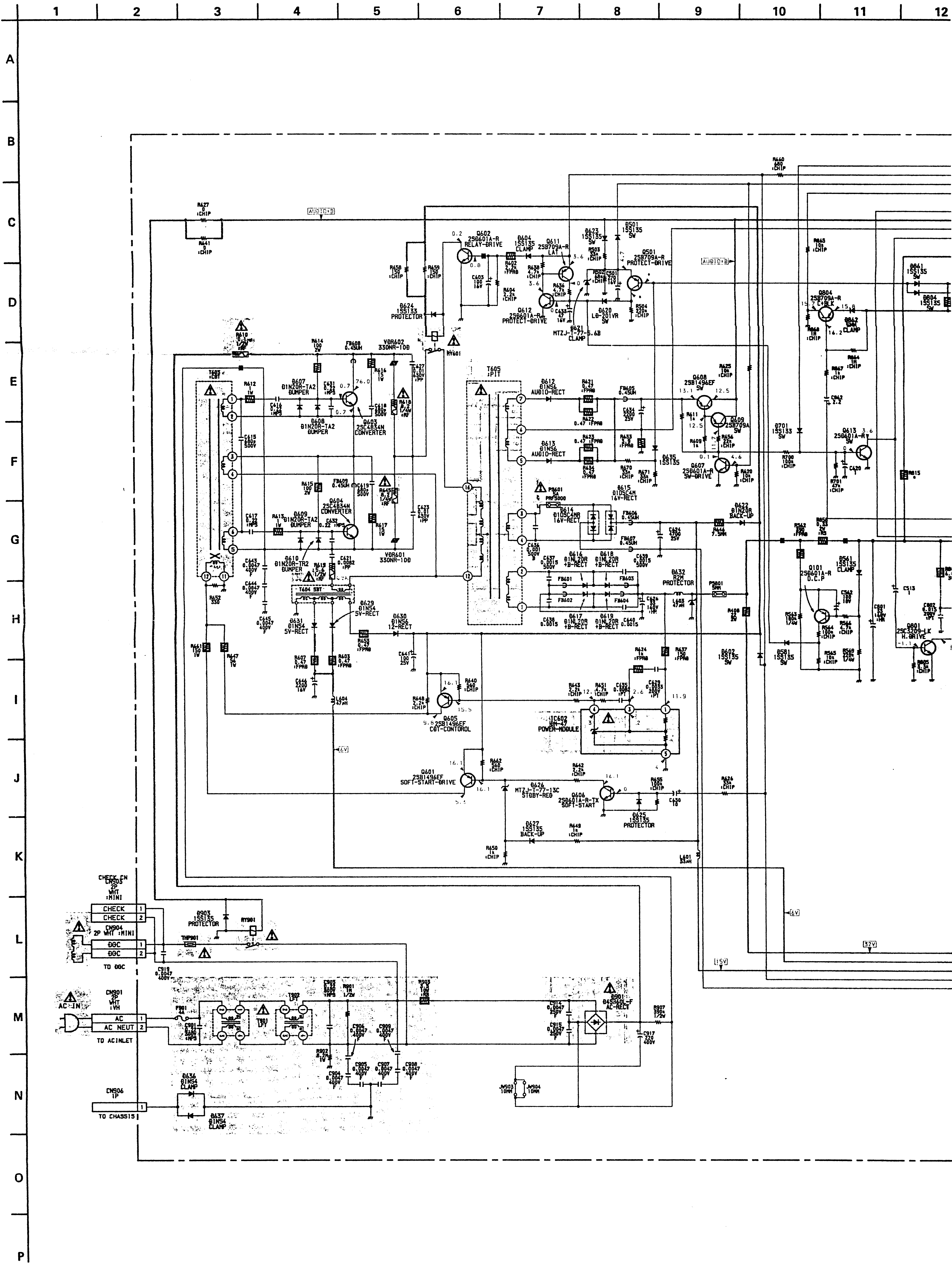
5-1. BLOCK DIAGRAM (TV SECTION)

* Refer to the FRAME SCHEMATIC DIAGRAM (• See page 77)


TU701
CLK
DATA
ENABLE
BM
BTL
BPL
IF
IF
5V
AGC
RF AGC
SW3
SW2
SW1
AFT
VIDEO
AUDIO
SW +12V
SW +32V
SW +5V
+9V
TU AUDIO
To VCR AUDIO BLOCK
CN004
TU AUDIO
To TIMER/MODE CONTROL VPS BOARD
IC201
VCR IN SW
VIDEO BUFFER Q104
SEL 3
SEL 4
SEL 5
FROM TIMER/MODE CONTROL BLOCK
CN401
CN002
IC001
Y/C PROCESS
VIDEO
YC2
BOARD (1/3)
CN002
CN401
FROM SYSTEM CONTROL BLOCK
J102
V IN
VIDEO
CN101
MF1
BOARD (1/5)
CN001
FROM TIMER/MODE CONTROL BLOCK
IC001 (1/2)
MAIN μCOM
BUFFER Q401
BUFFER Q403
INVERTER Q407, 408
V SYNC
INVERTER Q405
H CONT
AFT BUFFER Q105
AFT
SYS I
SYS B/G
SYS I+D/K
AGC OFF
LAT
DAT
CLK
SCL
SDA
VS
OSD VS SWITCH Q602, 603
YM
VOL
A MUTE
D409
D414
SW +9V
MUTE SWITCH Q410
D411
D423
H SYNC
H PULSE
V PULSE
CRT POW
VCR POW
R
G
B
IC002
NVM
CLK
SDA
SCL
SDA
MA2
BOARD (1/7)
(TUNER)
J401
VIDE IN
T R
T G
T B
T VS
CN605
To ZD BOARD CN601
VCR POWER
+12V
+5V
+15V
CDT CONTROL Q605
IC602
POWER MODULE
SOFT START DRIVE Q601
SOFT START Q606
50/60 SWITCH Q551
CN901
AC IN
F901 4A
LINE FILTER T901, 902
AC RECT D901
CN904
DGC
THP901
T603
CONVERTER Q603
CONVERTER Q604
T604
+5V RECT D629, 631
D630
T605
AUDIO RECT D612
AUDIO +B
AUDIO RECT D613
+15V
+15V RECT D614, 615
+B RECT D616-619
D602
D622
LAT Q611
OCP Q101
PROTECT DRIVE Q601, 612
RV502 V LIN
RY601
RELAY DRIVE Q602
V CENT SWITCH Q552
RY901
SW Q608, 609
SW DRIVE Q607
SW Q613
H DRIVE Q601


CN004
TU AUDIO
To TIMER/MODE CONTROL VPS BOARD
CN401
CN002
IC001
Y/C PROCESS
VIDEO
YC2 BOARD (1/3)
SEL 3
SEL 4
SEL 5
FROM TIMER/MODE CONTROL BLOCK
IC204
LINE OUT (C+)
FROM SYSTEM CONTROL BLOCK
PB
VIDEO BUFFER Q406
J401
TV OUT
IC202
LINE BYPASS SW
VIDEO BUFFER Q207
FROM TIMER/MODE CONTROL BLOCK
SEL 1
SEL 2
FROM AUDIO BLOCK
CN003
CN306
VIDEO
TU AUDIO
SCL
SDA
VS
YM
VOL
SP MUTE
H SYNC
H PULSE
V PULSE
CRT POW
VCR POW
R
G
B
TR
TG
TB
T YS
IC001 (1/2)
MAIN µCOM
INVERTER Q407, 408
INVERTER Q405
V SYNC
H CONT
AFT
SYS 1
SYS B/G
SYS I+D/K
AGC OFF
LAT
DAT
CLK
IC002
NVM
OSD VS SWITCH Q602, 603
A MUTE
SW +9V
D414
MUTE SWITCH Q410
D409
D411
D425
MUTE
FROM VCR AUDIO BLOCK
D2 BOARD
(TV MAIN, POWER, H/V OUT)
MUTE Q303
BUFFER Q314
RV301 SBM
DELAY DRIVE Q302
+9V
DL301
T301 DAT
YCM301
Y/C MODU
BUFFER Q311, 313
BUFFER Q315
BUFFER Q318, 319
IC301
PAL/NTSC JUNGLE
C OUT
U
V
Y IN
C IN
V IN
H IN
S/S
N/P
60/50
3/4
SHAP
HUE
COL
PIC
V RAMP
HP
VNF
VCD
X301 500kHz
X4
X443 4.43MHz
CV443
BG
SYN
VD
HD
D319
IC302
BUS DECODE
BUS SWITCH Q316
BUS SWITCH Q309
PAL
BRT
YM SWITCH Q307
BRT ABL Q305, 306
KILLER SWITCH Q317
KILLER SWITCH Q301
KILLER SWITCH Q024
RV302 PHASE
V SIZE CORR Q803
RV803 H PHASE
IC304
REG INTERFACE
TV R
TV G
TV B
R OUT
G OUT
B OUT
+9V
BIAS Q1407
BIAS Q1406
R CUT S/H
G CUT S/H
B CUT S/H
RD S/H
GD S/H
BD S/H
EXT CLAMP
TV CLAMP
EXT PIC
BRT
BLK
ON R
ON G
ON B
LIN R
LIN G
LIN B
TYS
YS
CN305
CN102
C BOARD
(R, G, B OUT)
R OUT Q704
G OUT Q705
B OUT Q706
RV705 R BKG
RV706 G BKG
RV707 B BKG
RV708 G DRIVE
RV709 B DRIVE
BIAS Q708, 709
RV704 SUB BRT
CRT701
RV701 SCREEN
RV703 FOCUS
RV702 H STAT
CN702
200V
1000V
H1
H2
H
V901
PICTURE TUBE
HV
IC203
VOL CONT
D201
AUDIO +B
MUTE Q202
MUTE Q201
D203
IC201
AUDIO OUT
CN307
HP L
HP R
SP
MF1 BOARD (2/5)
(HEADPHONES)
J101
HEADPHONES
IC306
+9V REG
+15V
+9V
CN304
SPEAKER
60/50 SWITCH Q551
C+ BLK Q804
T605
AUDIO RECT D612
AUDIO RECT D613
+15V RECT D614, 615
+B RECT D616-619
AUDIO +B
+15V
D622
D602
LAT Q611
OCP Q181
PROTECT DRIVE Q601, 612
RY601
RELAY DRIVE Q602
RV502 V LIN
RV503 V SIZE
RV551 V CENT
V CENT SWITCH Q552
IC551
V OUT
T551 FBT
CN501
1000V
200V
H1
H2
HV
+15V
SW DRIVE Q607
RY901
SW Q608, 609
SW Q613
H DRIVE Q801
T801
H OUT Q802
S802
S801
CN801
H+
H-
V-
V+
DY ASS'Y

(1) Schematic Diagram of D2 Board (1/2)



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K
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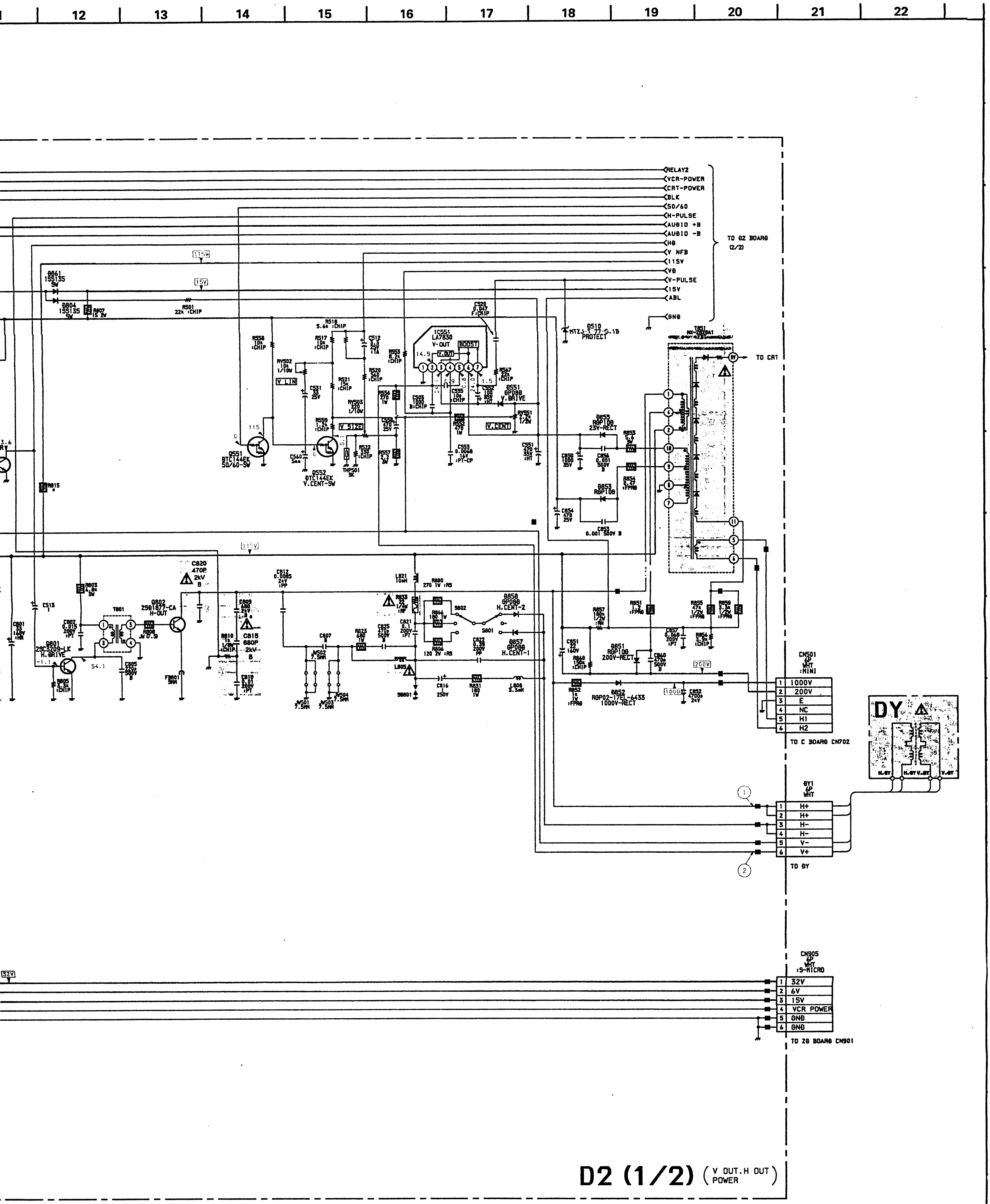
M
N
O
P
R427 0 :CHIP
R441 0 :CHIP
AUDIO+B
Q602 2SD601A-R RELAY-DRIVE
Q604 1SS135 CLAMP
Q611 2SB709A-R LAT
Q623 1SS135 SW
Q501 1SS135 SW
Q501 2SB709A-R PROTECT-DRIVE
Q612 2SD601A-R PROTECT-DRIVE
Q620 LB-201VR SW
Q621 MTZJ-T-77-5.6B CLAMP
Q624 1SS133 PROTECTOR
RY601
R614 100 2W
FB608 0.45UH
VDR602 330NR-10D
T603 :CBT
Q607 D1N20R-TA2 DUMPER
Q603 2SC4834N CONVERTER
Q608 D1N20R-TA2 DUMPER
Q604 2SC4834N CONVERTER
Q609 D1N20R-TA2 DUMPER
Q610 D1N20R-TR2 DUMPER
VDR601 330NR-10D
T604 SBT
Q631 D1NS4 5V-RECT
Q629 D1NS4 5V-RECT
Q630 D1NS6 12-RECT
T605 :PIT
Q612 D1NS6 AUDIO-RECT
Q613 D1NS6 AUDIO-RECT
Q615 D1DSC4M 16V-RECT
Q614 D1DSC4MR 16V-RECT
PS601 5A PRF5000
Q616 D1NL20R +B-RECT
Q618 D1NL20R +B-RECT
Q617 D1NL20R +B-RECT
Q619 D1NL20R +B-RECT
Q632 R2M PROTECTOR
PS801 5AH
Q622 D1N20R BACK-UP
Q608 2SB1496EF SW
Q609 2SB709A SW
Q607 2SD601A-R SW-DRIVE
Q635 1SS135
Q701 1SS133 SW
Q613 2SD601A-R SW
Q804 2SB709A-R CLK
Q842 CLAMP
Q861 1SS135 SW
Q804 1SS135 SW
Q101 2SD601A-R O.C.P
Q561 1SS135 CLAMP
Q581 1SS135 SW
Q602 1SS135 SW
Q801 2SC3209-LK H.DRIVE
Q605 2SB1496EF CBT-CONTOROL
IC602 IBH-47 POWER-MODULE
Q601 2SB1496EF SOFT-START-DRIVE
Q626 MTZJ-T-77-13C STDBY-REG
Q606 2SD601A-R-TX SOFT-START
Q625 1SS135 PROTECTOR
Q627 1SS135 BACK-UP
L601 33uH
L604 47uH
6V
15V
32V
CHECK CN CN905 2P WHT :MINI
CHECK
CHECK
CN904 2P WHT :MINI
DGC
DGC
TO DGC
Q903 1SS135 PROTECTOR
RY901
THP901
C919 0.0047 400V
CN901 2P :VH
AC IN
AC
AC NEUT
TO ACINLET
F901 4A
T901 LFT
T902 LFT
R901 1M 1/2W
R902 8.2M 1W
R903 3.3 10W :RB
D901 D4SB60L-F AC-RECT
R907 330k 1/2W
C917 220 400V
JW903 10MM
JW904 10MM
CN906 1P
TO CHASSIS
Q636 D1NS4 CLAMP
Q637 D1NS4 CLAMP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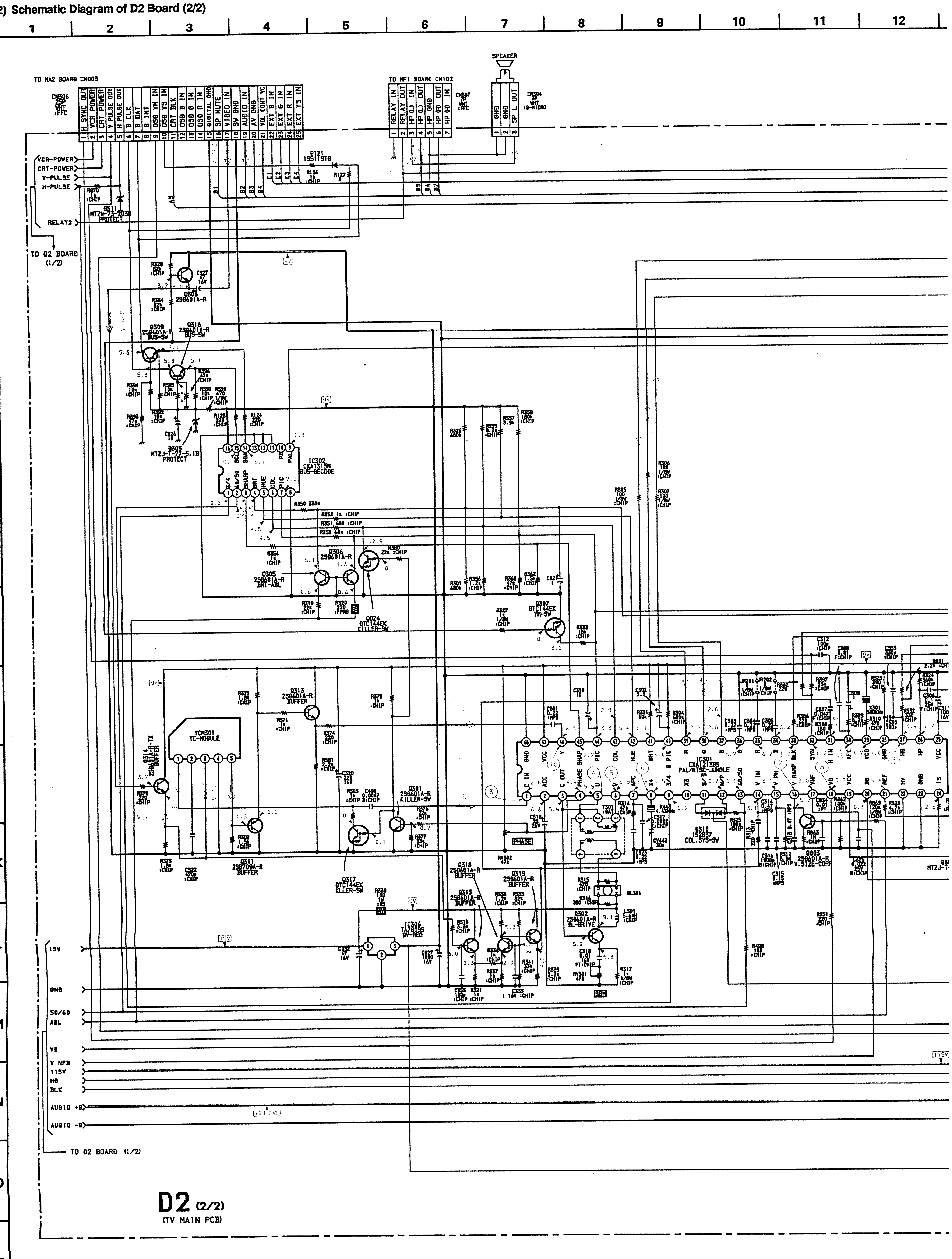
RELAY2
VCR-POWER
CRT-POWER
BLK
50/60
H-PULSE
AUDIO +B
AUDIO -B
HD
V NFB
115V
VD
V-PULSE
15V
ABL
GND
TO D2 BOARD (2/2)
115V
15V
D861 1SS135 5W
D804 1SS135 5W
R807 15 2W
R501 22k :CHIP
R518 5.6k :CHIP
C520 0.047 F:CHIP
IC551 LA7830 V-OUT
V.OUT
BOOST
D510 MTZJ-T-77-5.1B PROTECT
T851 NX-2620A1
HV
TO CRT
R558 10k :CHIP
R517 10k :CHIP
C512 3.3 25V :TA
R553 8.2k :CHIP
RV502 10k 1/10W
V LIN
C531 33 25V
R521 15k :CHIP
R520 560 :CHIP
RV503 220 1/10W
V SIZE
R556 270 1W
C503 1000 B:CHIP
C555 10k :CHIP
C552 100 35V :HT
R547 22k :CHIP
D551 GP08D V.DRIVE
RV551 4.7k 1/2W
V.CENT
R559 1.2k :CHIP
C558 470 25V
R552 270 1W
C553 0.0068 16V :PT-CP
C551 470 35V :HT
Q551 DTC144EK 50/60-SW
C560 5mm
Q552 DTC144EK V.CENT-SW
R522 330 :CHIP
THP501 3K
R557 2.2 2W
D853 RGP10D 23V-RECT
R853 5.6 3W
C850 1000 35V
C856 0.001 500V B
R854 0.47 :FPRD
D853 RGP10D
C854 470 25V
C853 0.001 500V B
R815
115V
C820 470P 2kV B
R803 6.8k 3W
C513 1
C801 33 160V :HR
C802 0.015 200V :PT
T801
R808 JW 0.5
Q802 2SD1877-CA H-OUT
C809 680 2kV B
C815 680P 2kV B
R810 1k 1/4W :CHIP
C810 0.01 200V :PT
Q801 2SC3209-LK H.DRIVE
R805 4.7k :CHIP
C805 220p 500V B
FB801 5mm
C812 0.0085 2kV :PP
C807
JW502 7.5mm
JW501 7.5mm
JW503 7.5mm
JW504 7.5mm
L821 10mH
R880 270 1W :RS
R833 22 1/4W :RF
R844 180 1W
S802
S801
C821 0.1 200V :PT
R823 680 1W
C825 470p 500V B
R804 120 2W :RS
C822 0.39 200V PP
D858 GP08D H.CENT-2
D857 GP08D H.CENT-1
L805
S8801
C816 1 250V
R831 180 1W
L806 3.3mH
C851 22 160V
R860 150k :CHIP
R857 180k 1/2W :RN
D851 RGP10D 200V-RECT
R851 1.2 :FPRD
C840 470p 500V B
C857 0.068 200V :PT
R855 47k 1/2W :FPRD
R856 3.9k :CHIP
R859 3.3k 1/2W :FPRD
200V
R852 1k 1W :FPRD
D852 RGP02-17EL-6433 1000V-RECT
1000V
C852 4700p 2kV
CN501 6P WHT :MINI
1 1000V
2 200V
3 E
4 NC
5 H1
6 H2
TO C BOARD CN702
DY
H.DY
H.DY
V.DY
V.DY
DY1 6P WHT
①
②
1 H+
2 H+
3 H-
4 H-
5 V-
6 V+
TO DY
32V
CN905 6P WHT :S-MICRO
1 32V
2 6V
3 15V
4 VCR POWER
5 GND
6 GND
TO Z8 BOARD CN901

D2 (1/2) (V OUT.H OUT POWER)

B-SS4714<AEP>-D2.-P1

2) Schematic Diagram of D2 Board (2/2)



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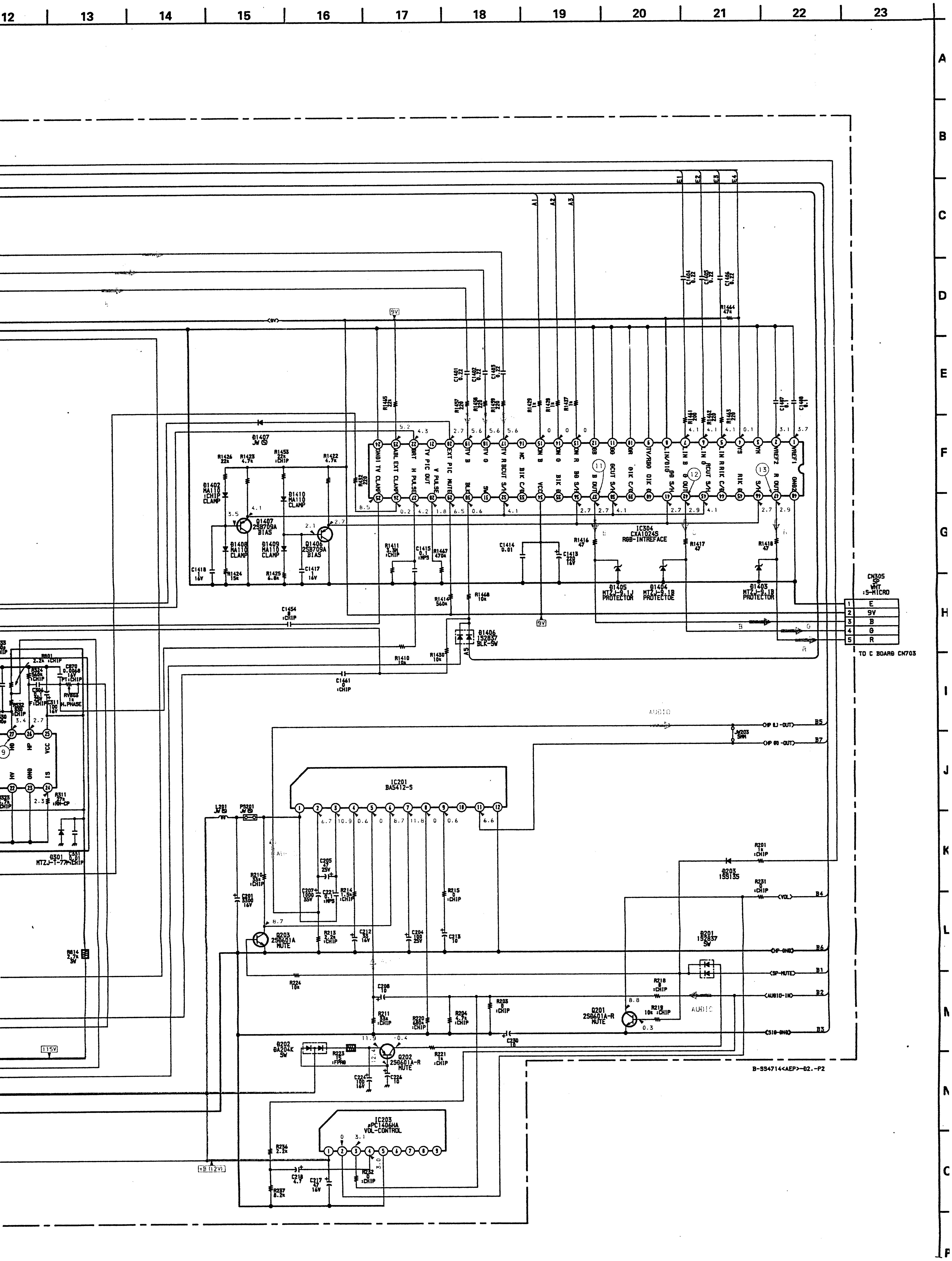
12
TO MA2 BOARD CN003
CN306 25P WHT :FFC
H SYNC OUT
VCR POWER
CRT POWER
V PULSE OUT
H PULSE OUT
B CLK
B DAT
B INT
OSD YM IN
OSD YS IN
CRT BLK
OSD B IN
OSD G IN
OSD R IN
DIGITAL GND
SP MUTE
VIDEO IN
SW GND
AUDIO IN
AV GND
VOL CONT VC
EXT B IN
EXT G IN
EXT R IN
EXT YS IN
TO MF1 BOARD CN102
RELAY IN
RELAY OUT
HP (L) IN
HP (L) OUT
HP GND
HP (R) OUT
HP (R) IN
CN307 7P WHT :FFC
SPEAKER
GND
GND
SP L OUT
CN304 3P WHT :S-MICRO
VCR-POWER
CRT-POWER
V-PULSE
H-PULSE
RELAY2
TO D2 BOARD (1/2)
D121 1SS119TB
D511 MTZJ-T-72-20B PROTECT
Q303 2SB601A-R
Q309 2SB601A-R BUS-SW
Q316 2SB601A-R BUS-SW
D305 MTZJ-T-77-5.1B PROTECT
IC302 CXA1315M BUS-DECODE
Q305 2SB601A-R BRT-ABL
Q306 2SB601A-R
Q024 DTC144EK KILLER-SW
Q307 DTC144EK YM-SW
YCM301 YC-MODULE
Q314 2SB601A-R-TX BUFFER
Q313 2SB601A-R BUFFER
Q311 2SB709A-R BUFFER
Q301 2SB601A-R KILLER-SW
Q317 DTC144EK KLLER-SW
IC306 TA7805S 5V-REG
Q318 2SB601A-R BUFFER
Q315 2SB601A-R BUFFER
Q319 2SB601A-R BUFFER
Q302 2SB601A-R BL-DRIVE
IC301 CXA1213BS PAL/NTSC-JUNGLE
D310 1SS237 COL.SYS-SW
Q803 2SB601A-R V.SIZE-CORR
PHASE
SBH
15V
GND
50/60
ABL
VD
V NFB
115V
HD
BLK
AUDIO +B
AUDIO -B
TO D2 BOARD (1/2)
D2 (2/2)
(TV MAIN PCB)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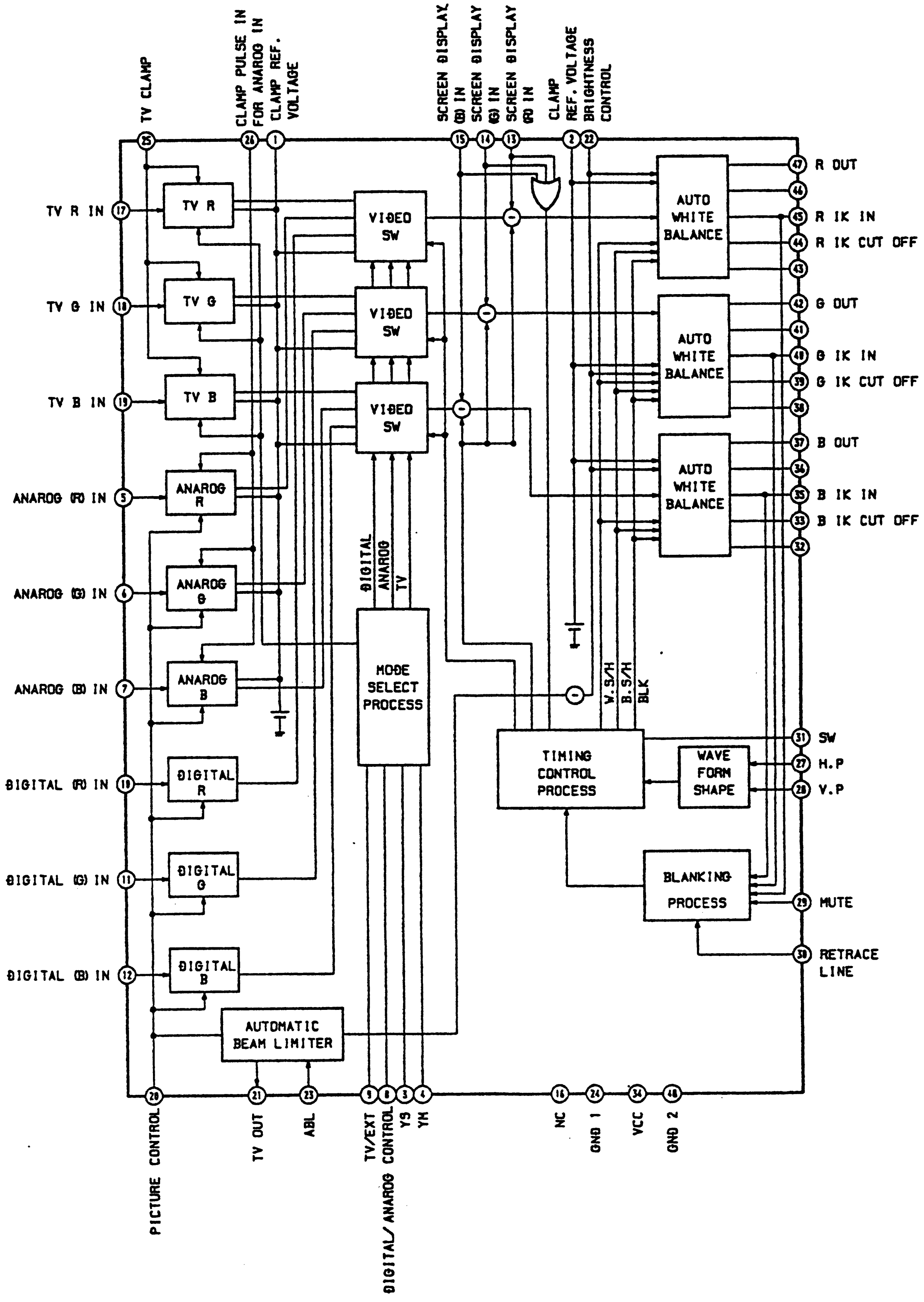
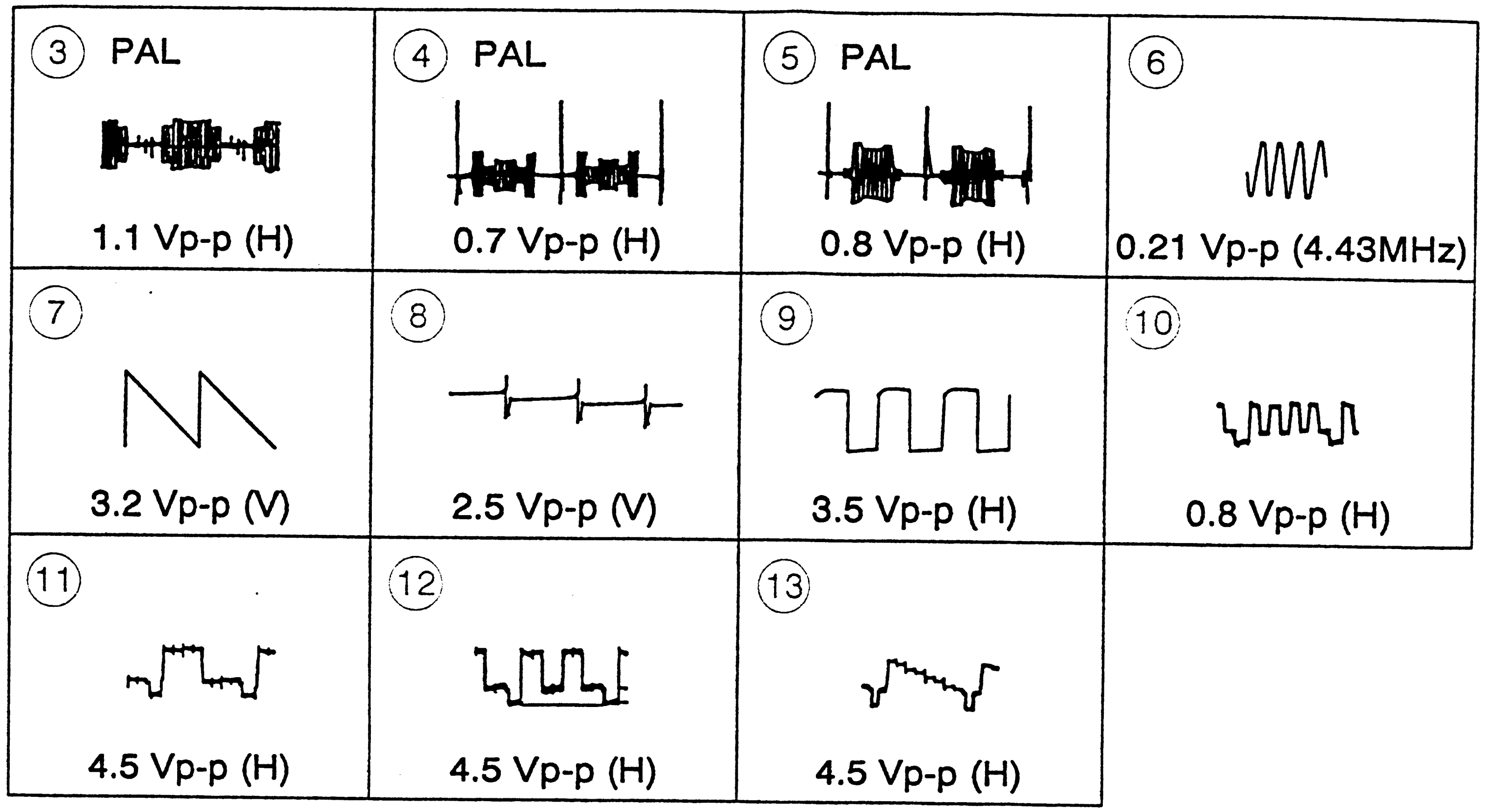
IC304
CXA1024S
RGB-INTREFACE
GND1 TV CLAMP
ABL EXT CLAMP
BRT
H PULSE
TV PIC OUT
V PULSE
EXT PIC MUTE
TV B
BLK
TV G
SW
TV R
BCUT S/H
NC
BIK C/B
ON B
VCC
ON G
BIK B
ON R
BB S/H
BB
B OUT
BG
GCUT S/H
BR
GIK C/B
TV/RGB
GIK B
LIN/DIG
GB S/H
LIN B
G OUT
LIN G
RCUT S/H
LIN R
RIK C/B
YS
RIK B
YM
S/H
VREF2
R OUT
VREF1
GND2
R1445 22k
C1401 0.22
C1402 0.22
C1403 0.22
R1457 220
R1458 220
R1459 220
R1429 1k
R1428 1k
R1427 1k
R1461 200
R1462 220
R1463 220
C1407 0.1
C1408 0.1
C1404 0.22
C1405 0.22
C1406 0.22
R1464 47k
E1
E2
E3
E4
A1
A2
A3
9V
R432 220
R1426 22k
R1423 4.7k
R1453 22k :CHIP
R1422 4.7k
Q1407 JW
D1402 MA110 :CHIP CLAMP
D1410 MA110 CLAMP
Q1407 2SB709A BIAS
Q1406 2SB709A BIAS
D1408 MA110 CLAMP
D1409 MA110 CLAMP
C1418 16V
R1424 15k
R1425 6.8k
C1417 16V
R1411 3.3M :CHIP
C1415 0.1 :NPS
R1467 470k
C1414 0.01
C1413 220 16V
R1416 47
R1417 47
R1418 47
D1405 MTZJ-9.1J PROTECTOR
D1404 MTZJ-9.1B PROTECTOE
D1403 MTZJ-9.1B PROTECTOR
R1414 560k
R1468 10k
C1454 :CHIP
D1406 1S2837 BLK-SW
A5
R1410 10k
R1430 10k
C1461 0 :CHIP
CN305 5P WHT :S-MICRO
1 E
2 9V
3 B
4 G
5 R
TO C BOARB CN703
B
G
R
AUDIO
<HP (L) -OUT> B5
<HP (R) -OUT> B7
JW203 5MM
IC201
BA5412-S
L201 JW
PS201 JW
C205 47 25V
R210 33k :CHIP
C201 3300 16V
C207 1000 35V
C221 0.1 :NPS
R214 1.5k :CHIP
R215 0 :CHIP
Q203 2SD601A MUTE
R213 2.2k :CHIP
C212 33 16V
C204 100 25V
C213 10
R224 10k
C208 10
R211 33k :CHIP
R220 680k :CHIP
R204 4.7k :CHIP
R203 0 :CHIP
C230 10
D202 DA204K SW
R223 15 :FPRO
Q202 2SD601A-R MUTE
R221 1k :CHIP
C224 100 16V
C226 10
R201 1k :CHIP
D203 1SS135
R231 0 :CHIP
<VOL> B4
D201 1S2837 SW
<HP GND> B6
<SP-MUTE> B1
R218 :CHIP
<AUDIO-IN> B2
Q201 2SD601A-R MUTE
R219 10k :CHIP
<SIG GND> B3
IC203
μPC1406HA
VOL-CONTROL
R236 2.2k
R237 8.2k
C218 4.7
C217 47 16V
R232 0 :CHIP
+B (12V)
115V
R814 2.7k 3W
R801 2.2k :CHIP
C870 0.0068 16V
RV803 1k H.PHASE
C311 100 16V
D301 MTZJ-T-77
R311 27k :RN-CP
HD
HP
VCC
HV
GND
IS
B-SS4714<AEP>-B2.-P2

D2 Board IC304 CXA1024S

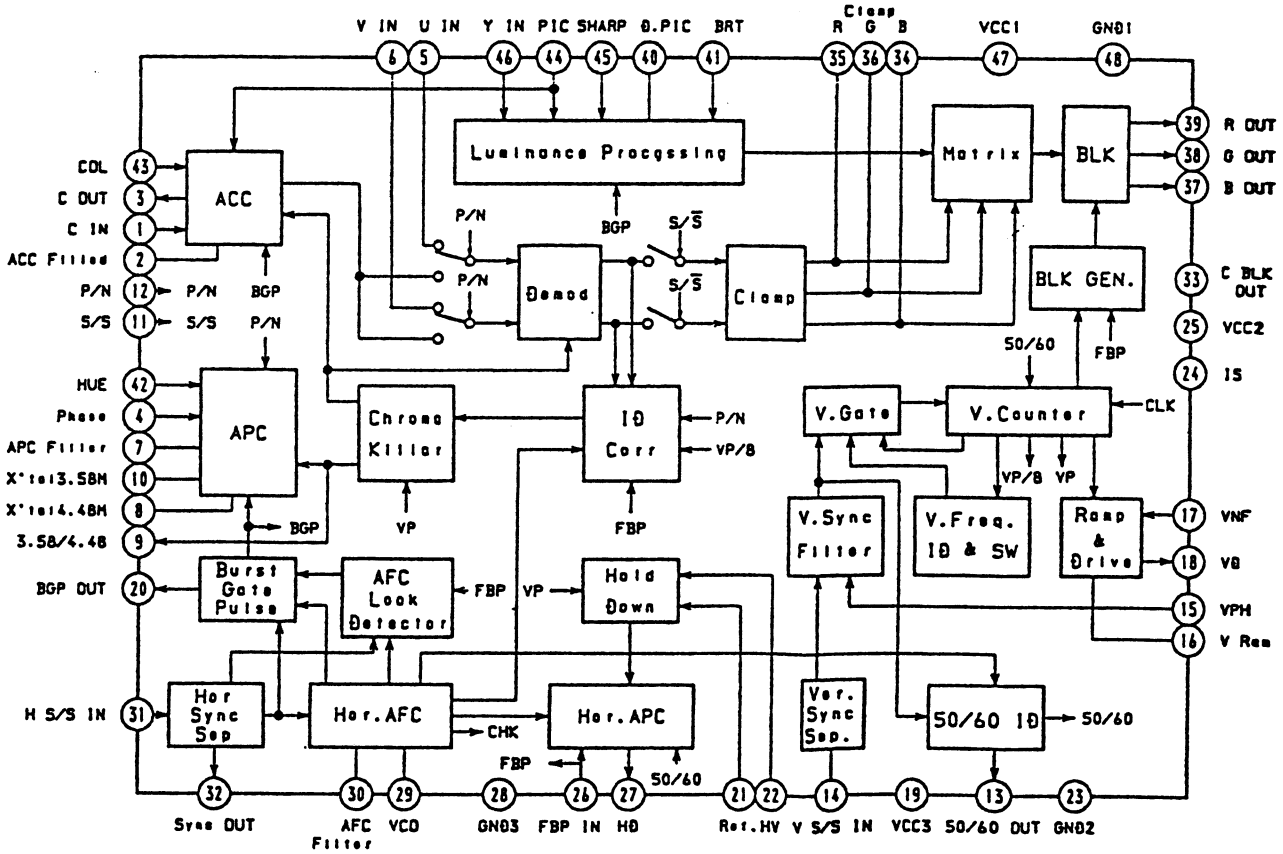


TV CLAMP
CLAMP PULSE IN FOR ANAROG IN
CLAMP REF. VOLTAGE
SCREEN DISPLAY (R) IN
SCREEN DISPLAY (G) IN
SCREEN DISPLAY (B) IN
CLAMP REF. VOLTAGE
BRIGHTNESS CONTROL
TV R IN
TV G IN
TV B IN
ANAROG (R) IN
ANAROG (G) IN
ANAROG (B) IN
DIGITAL (R) IN
DIGITAL (G) IN
DIGITAL (B) IN
TV R
TV G
TV B
ANAROG R
ANAROG G
ANAROG B
DIGITAL R
DIGITAL G
DIGITAL B
VIDEO SW
DIGITAL
ANAROG
TV
MODE SELECT PROCESS
AUTOMATIC BEAM LIMITER
AUTO WHITE BALANCE
W.S/H
B.S/H
BLK
TIMING CONTROL PROCESS
WAVE FORM SHAPE
BLANKING PROCESS
R OUT
R IK IN
R IK CUT OFF
G OUT
G IK IN
G IK CUT OFF
B OUT
B IK IN
B IK CUT OFF
SW
H.P
V.P
MUTE
RETRACE LINE
PICTURE CONTROL
TV OUT
ABL
TV/EXT
DIGITAL/ANAROG CONTROL
YS
YM
NC
GND 1
VCC
GND 2

• D2 BOARD WAVEFORMS (2/2)



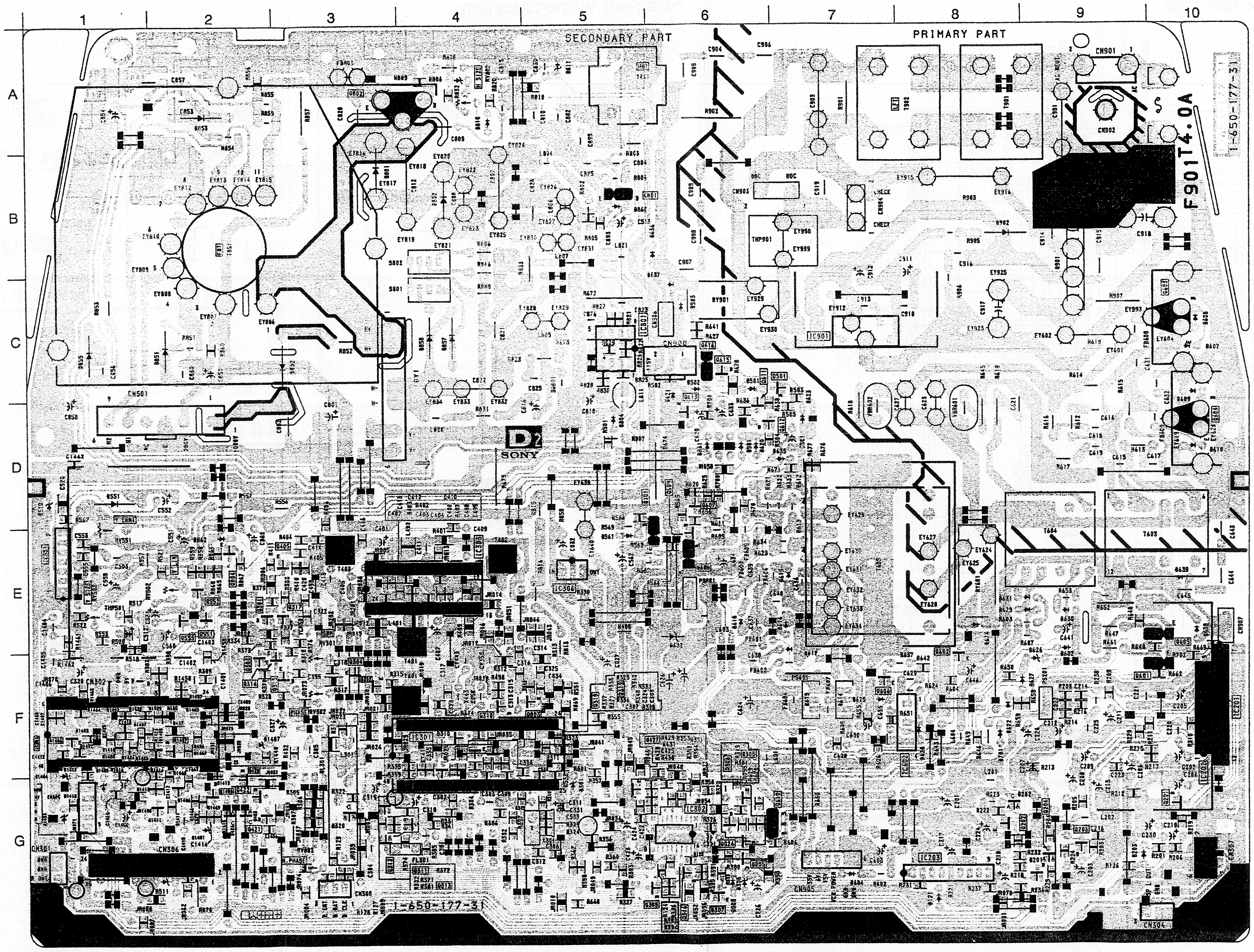
D2 Board IC301 CXA1213BS



V IN
U IN
Y IN
PIC
SHARP
D.PIC
BRT
Clamp R G B
VCC1
GND1
Luminance Processing
Matrix
BLK
R OUT
G OUT
B OUT
COL
C OUT
C IN
ACC Filter
P/N
S/S
ACC
BGP
P/N
S/S
Demod
Clamp
BLK GEN.
C BLK OUT
VCC2
IS
50/60
FBP
HUE
Phase
APC Filter
X'tal3.58M
X'tal4.43M
3.58/4.43
APC
Chroma Killer
ID Corr
VP/8
V.Gate
V.Counter
CLK
VP/8
VP
VP
FBP
V.Sync Filter
V.Freq. ID & SW
Ramp & Drive
VNF
VD
VPH
V Ram
BGP OUT
Burst Gate Pulse
AFC Look Detector
Hold Down
H S/S IN
Hor Sync Sep
Hor.AFC
CHK
Hor.APC
Ver. Sync Sep.
50/60 ID
50/60
Sync OUT
AFC Filter
VCO
GND3
FBP IN
HD
Ref.HV
V S/S IN
VCC3
50/60 OUT
GND2

– D2 Board –

D2 TV MAIN PCB
V.OUT, H.OUT
POWER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A
B
C
D
E
F
G
SECONDARY PART
PRIMARY PART
CN901
CN902
F901T4.0A
1-650-177-31
SONY
D2
1-650-177-31

Schematic diagram
← D2 board (2/2)

Schematic diagram
C board →

• D2 BOARD

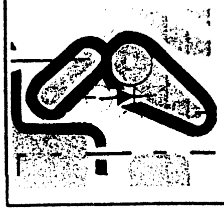
IC	
IC201	D-7
IC203	E-6
IC301	D-3
IC302	E-4
IC304	D-1
IC306	D-3
IC551	C-1
IC602	E-5

TRANSISTOR	
Q024	E-4
Q101	C-4
Q201	E-7
Q202	E-6
Q203	E-6
Q301	D-2
Q302	D-2
Q303	D-2
Q304	D-2
Q305	E-5
Q306	E-4
Q307	E-4
Q309	E-4
Q310	D-3
Q311	E-3
Q313	E-3
Q314	D-2
Q315	D-2
Q316	E-4
Q317	D-2
Q318	D-4
Q319	D-4
Q501	B-5
Q551	D-1
Q552	D-2
Q601	D-7
Q602	D-6
Q603	B-7
Q604	C-7
Q605	D-7
Q606	D-5
Q607	C-4
Q608	D-4
Q609	C-4
Q611	B-5
Q612	C-5
Q613	C-4
Q801	A-4
Q802	A-2
Q803	D-3
Q804	D-2
Q1406	D-1
Q1407	D-1

DIODE	
D121	E-6
D201	E-6
D202	E-6
D203	E-7
D301	E-4
D305	E-4
D310	D-3
D501	C-5
D510	C-1
D511	E-1
D551	C-1
D561	C-4
D581	C-5
D602	D-6
D604	E-5
D607	B-7
D608	B-7
D609	C-7
D610	C-7
D612	C-5
D613	C-5
D614	D-5
D615	D-5
D616	D-5
D617	D-5
D618	D-4
D619	D-5
D620	C-5
D621	C-4
D622	D-6
D623	C-5
D624	D-6
D625	D-5
D626	D-6
D627	D-6
D629	D-6
D630	D-6
D631	D-6
D632	D-5
D635	C-5
D636	B-4
D637	B-4
D701	E-6
D804	C-4
D851	B-1
D852	B-2
D853	A-1
D855	B-1
D857	B-3
D858	B-3
D861	C-4
D862	C-2
D901	B-6
D903	B-4
D1402	D-1
D1404	E-1
D1405	E-1
D1406	D-1
D1407	D-2
D1408	D-1
D1409	D-1
D1410	E-1

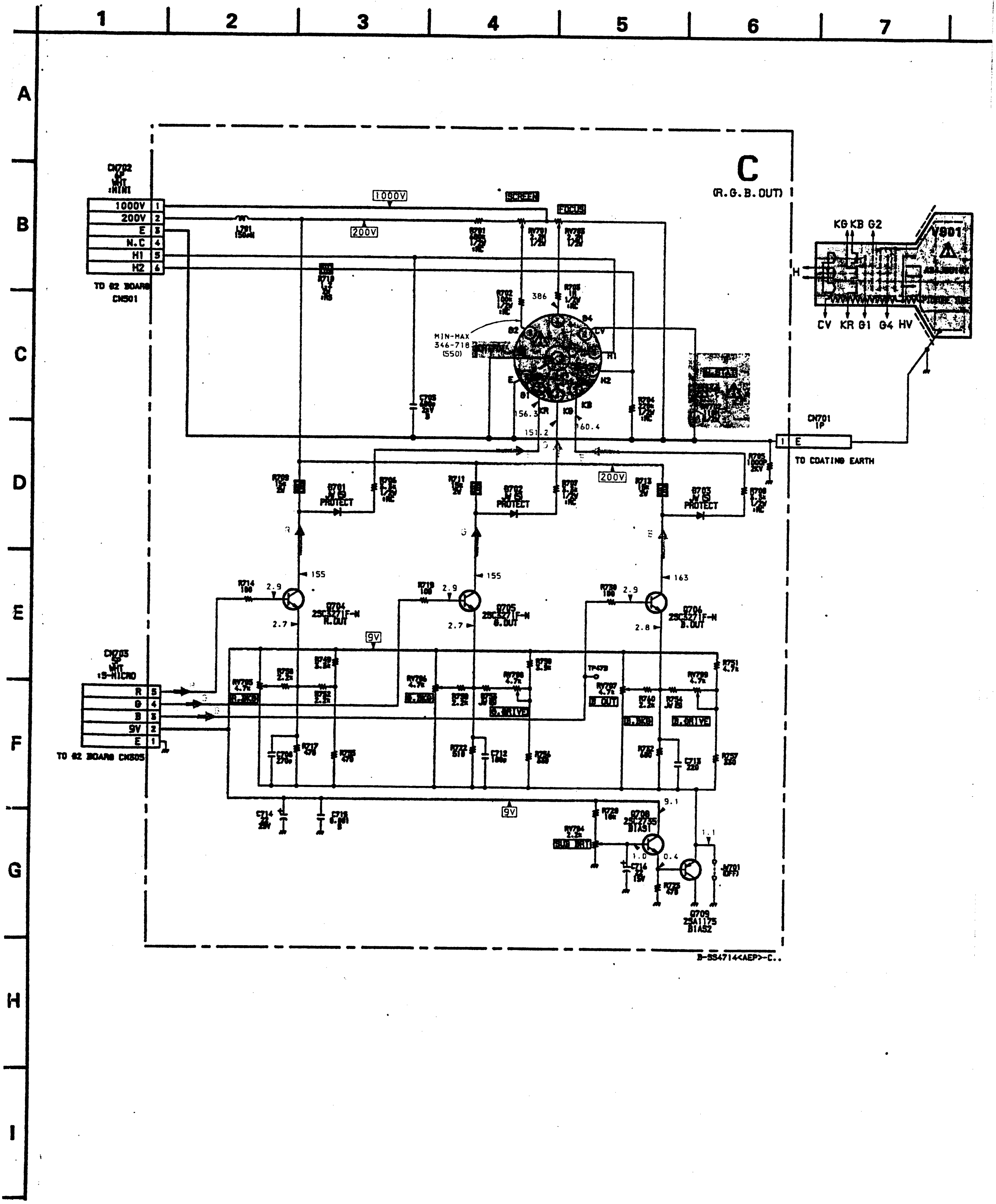
VARIABLE RESISTOR	
RV301	D-2
RV302	D-2
RV502	D-1
RV503	D-1
RV551	C-1
RV803	E-2

CRYSTAL	
X301	E-3
X443	D-3



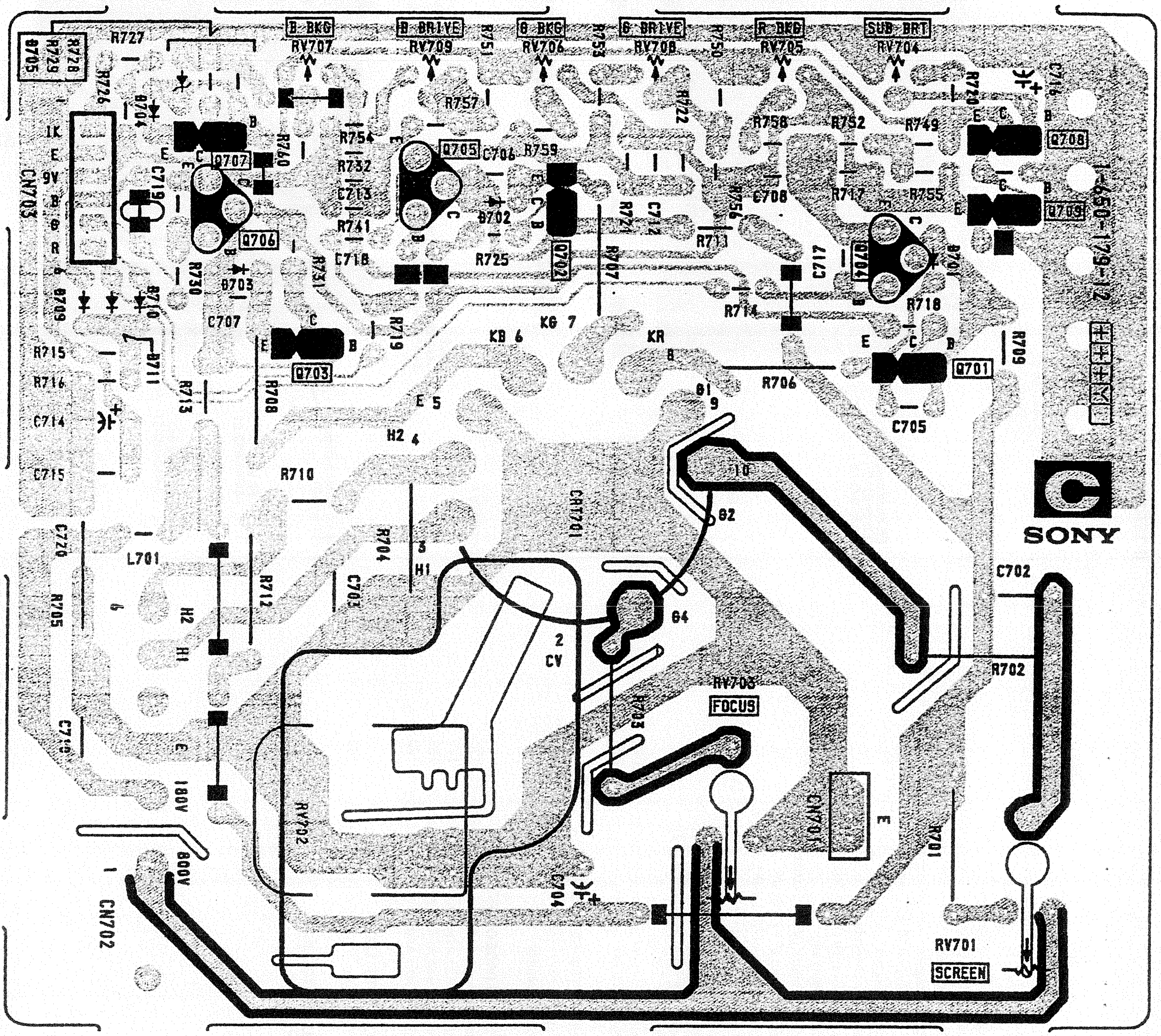
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

(3) Schematic Diagram of C Board

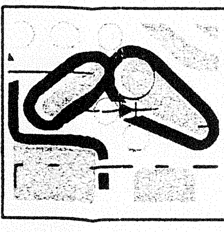

1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
C
(R.G.B.OUT)
CN702
6P
WHT
:MINI
1000V 1
200V 2
E 3
N.C 4
H1 5
H2 6
TO 62 BOARD CN501
1000V
200V
SCREEN
FOCUS
L701
150μH
R701
RV701
RV702
R702
100k
1/2W
:RC
R705
1M
1/2W
:RC
386
MIN-MAX
346-718
(550)
G2
G4
CV
H1
H2
E
G1
KR
KG
KB
156.3
151.2
160.4
C705
R704
220k
1/2W
:RC
V901
KG KB G2
H
CV KR G1 G4 HV
CN701
1P
1 E
TO COATING EARTH
R795
1000P
2KV
200V
R709
R711
R713
D701
D702
D703
PROTECT
R706
R707
R708
R
G
B
155
155
163
R714
100
R719
100
R730
100
2.9
2.9
2.9
Q704
2SC3271F-N
R.OUT
Q705
2SC3271F-N
G.OUT
Q706
2SC3271F-N
B.OUT
2.7
2.7
2.8
9V
CN703
5P
WHT
:S-MICRO
R 5
G 4
B 3
9V 2
E 1
TO 62 BOARD CN305
RV705
4.7k
R.BKG
R750
2.2k
R749
R752
2.2k
RV706
4.7k
G.BKG
RV708
4.7k
G.DRIVE
TP479
RV707
4.7k
B OUT
R740
2.2k
B.BKG
RV709
4.7k
B.DRIVE
R751
4.7k
C708
270p
R717
470
R755
470
R722
C712
R756
R732
C713
220
R757
C714
22
25V
C716
9V
9.1
R720
10k
Q708
2SC2735
BIAS1
RV704
2.2k
SUB BRT
1.0
0.4
1.1
C716
22
16V
R723
470
S701
OFF
Q709
2SA1175
BIAS2
B-SS4714<AEP>-C..

C [R.G.B OUT]

– C Board –



B BKG
RV707
B DRIVE
RV709
B BKG
RV706
G DRIVE
RV708
R BKG
RV705
SUB BRT
RV704
R727
R728
R729
D705
R726
D704
R760
R757
R754
R732
C713
R741
R759
C706
D702
Q705
Q707
Q706
C719
CN703
1K
E
9V
B
G
R
D703
R730
R731
C718
R725
Q702
R707
R721
C714
R722
R758
R752
R749
R720
C716
Q708
Q709
R756
C708
R717
R755
R711
C717
Q704
D701
R718
R714
R709
1-650-179-12
D709
D710
D711
R715
R716
C714
C715
C707
R713
Q703
R708
R719
KB 6
KG 7
KR 8
G1 9
R706
Q701
C705
E 5
H2 4
R710
CRT701
10
G2
C720
L701
R705
C719
R712
C703
R704
3
H1
2
CV
G4
RV703
FOCUS
R703
C702
R702
H2
H1
E
180V
800V
CN702
RV702
C704
CN701
E
R701
RV701
SCREEN
SONY



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

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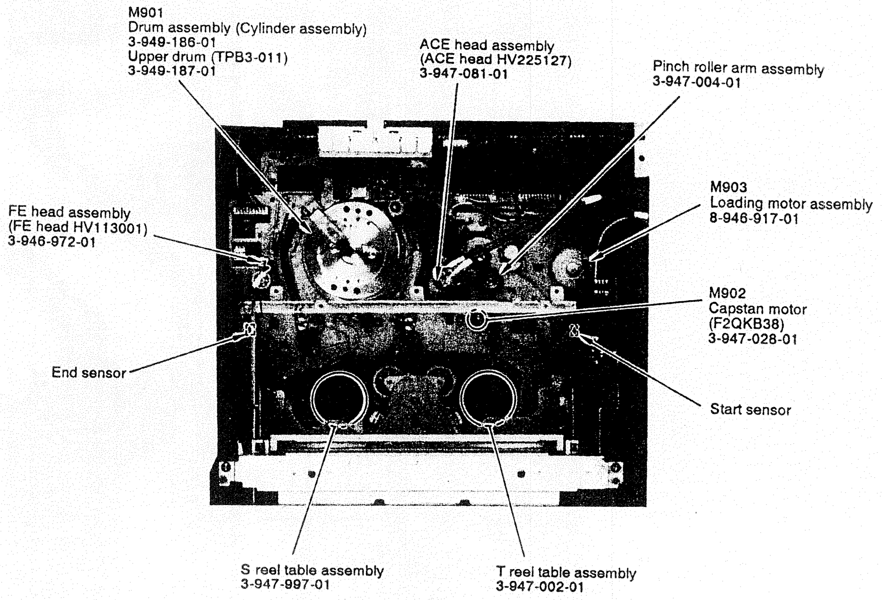
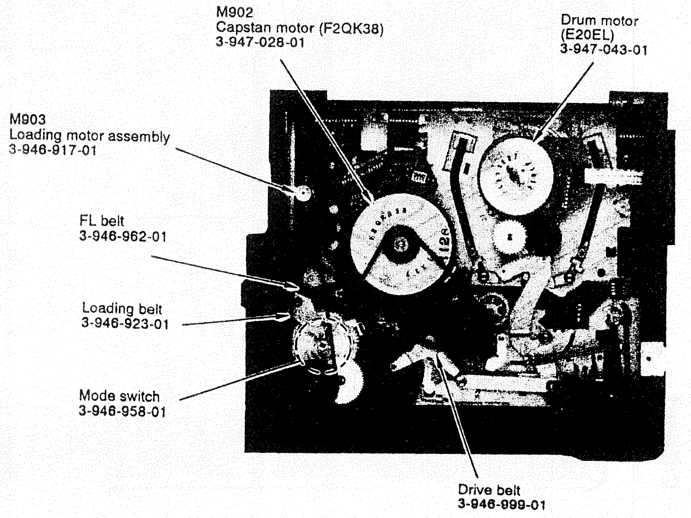
SECTION 1
GENERAL

1-1. INTERNAL VIEWS

– Top Side –

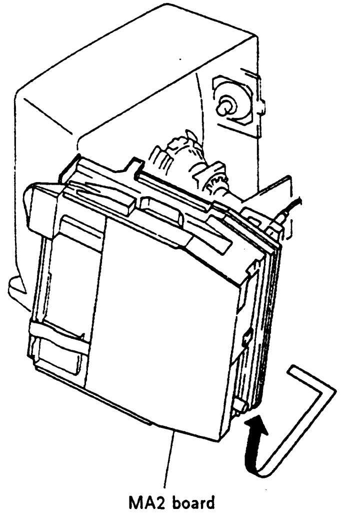

M901
Drum assembly (Cylinder assembly)
3-949-186-01
Upper drum (TPB3-011)
3-949-187-01
ACE head assembly
(ACE head HV225127)
3-947-081-01
Pinch roller arm assembly
3-947-004-01
FE head assembly
(FE head HV113001)
3-946-972-01
M903
Loading motor assembly
8-946-917-01
M902
Capstan motor
(F2QKB38)
3-947-028-01
End sensor
Start sensor
S reel table assembly
3-947-997-01
T reel table assembly
3-947-002-01

– Bottom Side –

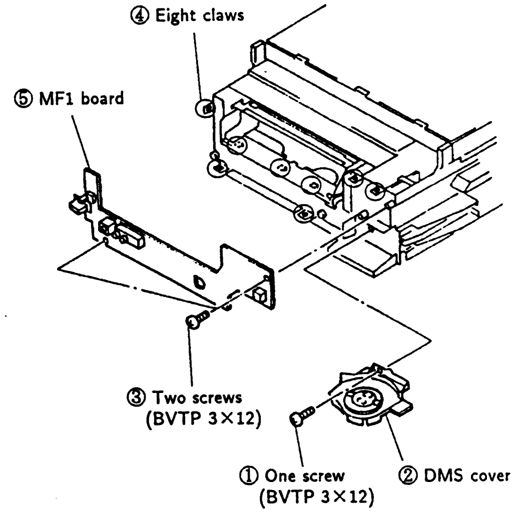

M902
Capstan motor (F2QK38)
3-947-028-01
Drum motor
(E20EL)
3-947-043-01
M903
Loading motor assembly
3-946-917-01
FL belt
3-946-962-01
Loading belt
3-946-923-01
Mode switch
3-946-958-01
Drive belt
3-946-999-01

SECTION 2
DISASSEMBLY

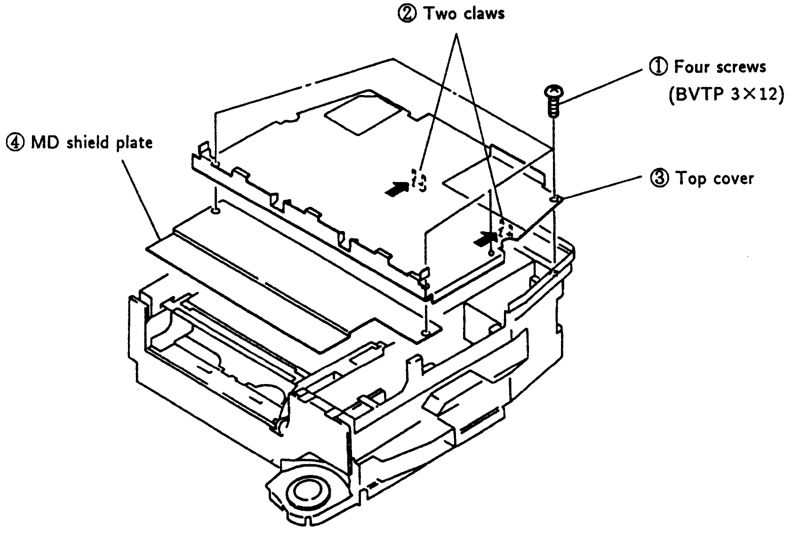
2-1. SERVICE POSITION



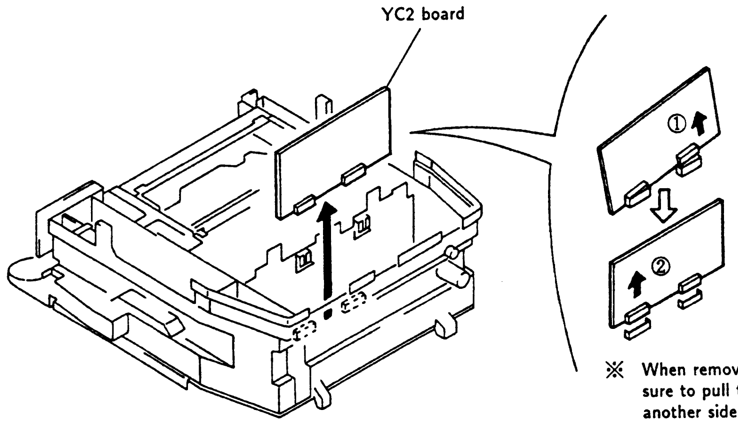
2-2. MF1 BOARD REMOVAL


④ Eight claws
⑤ MF1 board
③ Two screws
(BVTP 3×12)
① One screw
(BVTP 3×12)
② DMS cover

2-3. TOP COVER AND MD SHIELD PLATE REMOVAL

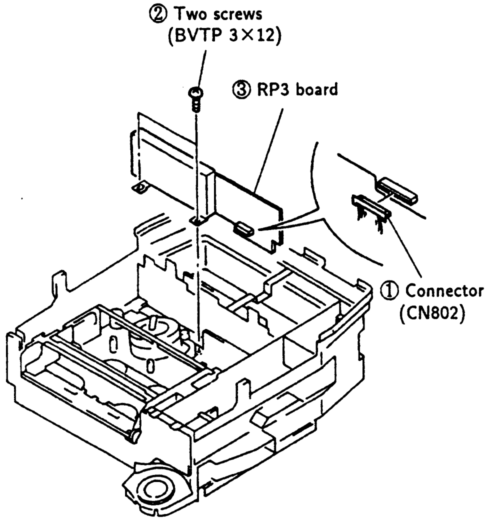

② Two claws
① Four screws
(BVTP 3×12)
④ MD shield plate
③ Top cover

2-4. YC2 BOARD REMOVAL

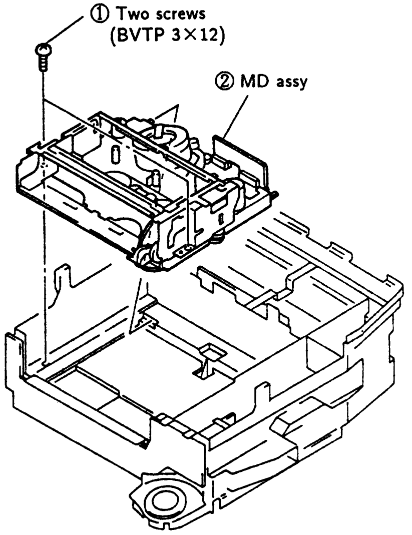

YC2 board
①
②

※ When removing the connector, be sure to pull the one side, then another side.

2-5. RP3 BOARD REMOVAL


② Two screws
(BVTP 3×12)
③ RP3 board
① Connector
(CN802)

2-6. MD ASSY REMOVAL


① Two screws
(BVTP 3×12)
② MD assy

SECTION 3
CIRCUIT ADJUSTMENTS

Necessary items and indications for total adjustment of electric circuit of this unit will be described in this chapter.

[Instruments to be Used]

1) Color TV
2) Single or dual trace type oscilloscope, band more than 30 MHz, delay mode, as provided.
3) Frequency counter (4 digits or more)
4) PAL pattern generater
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion meter
10) Alignment tape
    Part code : H7099046H (MH-1)

[Connection]

Unless otherwise specified, connect and adjust the measurement equipment as follows.

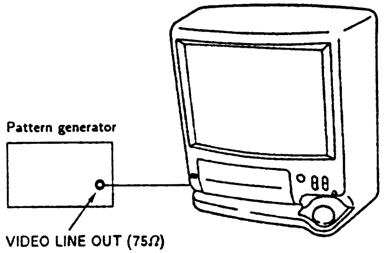


Fig. 3-1.

[Set-up for Adjustment]

The video signal from the pattern generator is used as adjustment signal for electrical adjustment. This video signal should meet the requirement. Connect the oscilloscope to the video input terminal on the MF 1 board and make sure that the amplitudes of sync signal of video signal, video portion and burst signal are flat at approximately 0.3, 0.7 and 0.3V, respectively, and that the level ratio of the burst signal and "red signal"are 0.30 : 0.66, Fig. 7-2. shows video signals (color bars) used in adjusting the electrical adjustment.

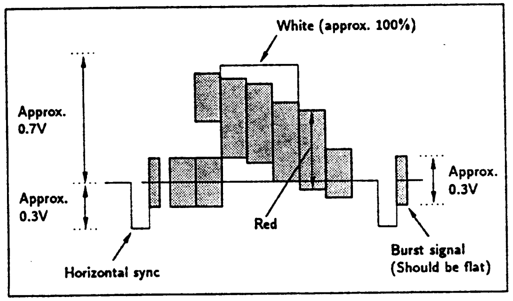


Fig. 3-2. Color bar signal of pattern generator

[Allgnment Tape (MH-1)]

	Mode	Time	Video signal	Audio signal
1	SP	Ten minutes	Stair-step	7 kHz
2		Five minutes	–	3 kHz
3		Ten minutes	Color bar	1 kHz
4		Three minutes	RF sweep	

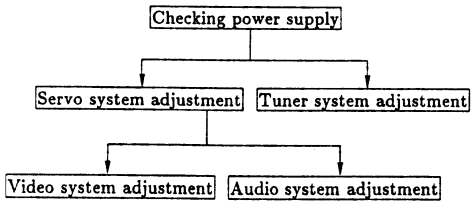
[Specified Input/Output Level Impedance]

Input/Output terminal

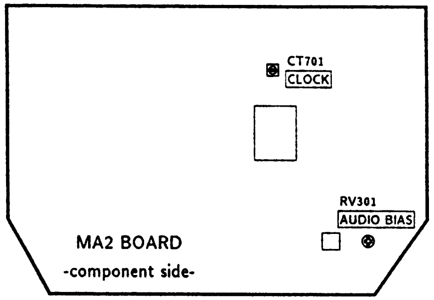
Video input	Pin jack Input signal : 1Vp-p, 75Ω, unbalanced Sync negative
VIDEO LINE OUT	Pin jack Output signal : 1Vp-p, 75Ω, unbalanced Sync negative
AUDIO LINE IN	Pin jack Input level : -7.5dBs (0dBs=0.775Vrms) Input impedance : More than 47kΩ
AUDIO LINE OUT	Pin jack Specified output : -7.5dBs At 47kΩ loaded. Load impedance : More than 10kΩ

[Adjustment Sequence]

Make the electrical adjustment in the following sequences.



3-1. M2 BOARD ADJUSTMENTS



1. CLOCK adjustment

Measurement Point	Pin ㉟ of IC701
Measurement Equipment	Frequency counter
Adjustment Element	CT701
Specified Value	244.1406μsec ± 0.0008μsec

1) Short circuit between pin ㊱ and GND of IC701.
2) Connect the frequency counter to pin ㉟ of IC701.
3) Adjust CT701 for 244.1406μsec ± 0.0008μsec.

2. Recording bias adjustment

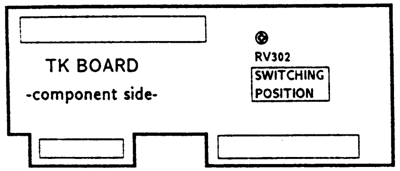
Mode	Recording and playback (SP mode)
Signal	400Hz, -30dBs 7kHz, -30dBs
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Adjustment Element	RV301
Specified Value	0 ± 2dB

Note : Tape path adustment should have been completed.

Adjustment Method :

1) Input signal of 400 Hz, -30dBs.
2) Make recording.
3) Set the AUDIO LINE IN signal to 7kHz, -30dBs and make recording.
4) Playback a recorded portion and measure output levels at 400Hz and 7kHz.
5) Confirm that the 7kHz playback signal level is within a range of 0±2dB against the 400Hz playback signal level. When beyond this range, adjust RV301 and repeat the steps (1) through (5).

3-2. TK BOARD ADJUSTMENT



SERVO SYSTEM ADJUSTMENT

1. Switching position adjustment (TK board)

Mode	Playback
Signal	Alignment tape, Stair step
Measurement Point	CH1:Pin ⑤ of CN402 (MA2) CH2:Pin ⑤ of CN401 (MA2)
Measurement Equipment	Oscilloscope
Adjustment Element	RV302
Specified Value	416 ± 32μsec (6.5± 0.5H)

Adjustment Method :

1) Press the tracking buttons ▼ and ▲ at a time.
2) Adjust for 416 ± 32μsec (6.5± 0.5) using RV302.

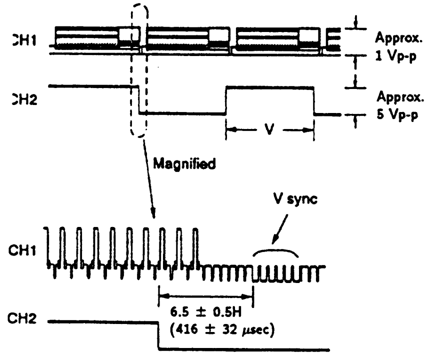
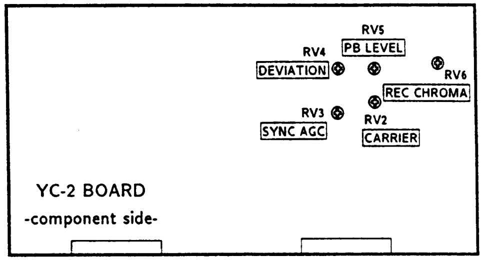


Fig. 3-3. Switching position adjustment

3-3. YC-2 BOARD ADJUSTMENTS



Adjust the video system in the following sequences as a rule. The color video signal supplied from the pattern generator is used as a video input signal for video system adjustment in the recording mode. Make sure that sync and color burst signals meet requirements specified at set up of adjustment shown in Fig 3-2.

[Adjustment Sequences]

1) Crystal oscillation frequency confirmation
2) Playback Y signal level adjustment
3) Sync AGC adjustment
4) Sync tip carrier set and deviation adjustment
5) Recording chroma signal level adjustment
6) Y signal recording level check
7) SECAM detector adjustment

1. Crystal oscillation frequency confirmation (YC-2 board)

Mode	Playback
Signal	Any tape
Measurement Point	Pin ㉑ of IC001
Measurement Equipment	Frequency counter, Oscilloscope
Specified Value	8.867238MHz ± 120Hz (PAL)

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) of high input impedance (1 MΩ or more) and low capacity (10 pF or less).

Confirmation Method :

1) Make sure that the frequency is 8.867238MHz ± 120 Hz.
2) Make sure that the amplitude is 0.6 ± 0.1 Vp-p.

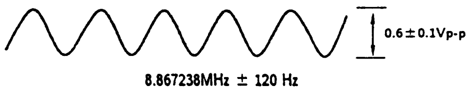


Fig. 3-4.

2. Playback Y signal level adjustment (YC-2 board)

Mode	Playback
Signal	Alignment tape, color bar
Measurement Point	VIDEO OUT
Measurement Equipment	Oscilloscope
Adjustment Element	RV005
Specified Value	1.00 ± 0.05 Vp-p

Note : Make this adjustment RENTAL PICTURE OFF condition.

Adjustment Method :

1) Adjust for 1.00 ± 0.05 Vp-p using RV005.

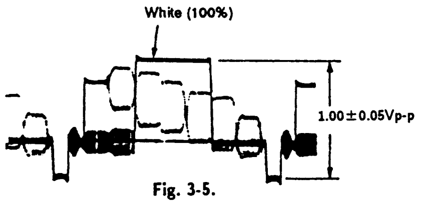


Fig. 3-5.

3. Sync AGC adjustment (YC-2 board)

Mode	Recording or EE
Signal	Color bar
Measurement Point	VIDEO OUT
Measurement Equipment	Oscilloscope
Adjustment Element	RV003
Specified Value	1.00 ± 0.05 Vp-p

Adjustment Method :

1) Adjust for 1.00 ± 0.05 Vp-p using RV003.

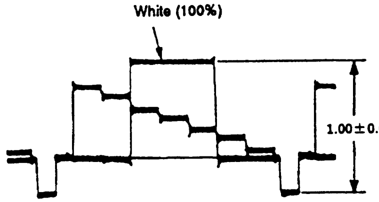


Fig. 3-6.

4. Sync tip carrier set and deviation adjustment (YC-2 board)

Before starting this adjustment, be sure to check that "2. playback Y signal level adjustment" has been completed.

Sync tip carrier set adjustment	
Mode	E-E
Signal	No signal
Measurement Point	Pin ⑩ of CN001 (REC Y)
Measurement Equipment	Frequency counter, Spectrum
Adjustment Element	RV002
Specified Value	3.80 ± 0.05 MHz
Deviation adjustment	
Mode	Recording and playback
Signal	Color bar
Measurement Point	VIDEO OUT
Measurement Equipment	Oscilloscope
Adjustment Element	RV004
Specified Value	1.00 ± 0.05 Vp-p

Note : Make this adjustment RENTAL PICTURE OFF condition

Adjustment Method :

1) Make no signal state and select the E-E mode.
2) Connect the frequency counter to the Pin ⑩ of CN 001 and adjust for 3.80 ± 0.05 MHz using RV002.
3) Input the color bar signal to make recording.
4) Playback the recorded tape portion and check the playback Y signal level of the VIDEO OUT. Specification : Should be 1.00 ± 0.05 Vp-p.
5) If does not meet the specification, repeat 1) to 4) after adjusting RV004.

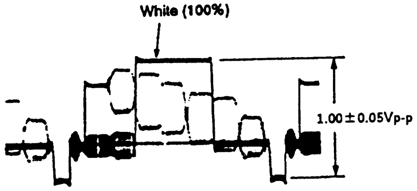


Fig. 3-7.

5. Recording chroma signal level adjustment (YC-2 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ① of CN001 (REC C)
Measurement Equipment	Oscilloscope
Adjustment Element	RV006
Specified Value	110 ± 5 mVp-p

Adjustment Method :

1) Adjust the color bar "red" level to 110 ± 5 mVp-p using RV006.

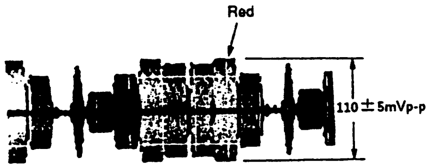


Fig. 3-8.

6. Y signal recording level adjustment (YC-2 board)

Mode	E-E
Signal	No signal
Measurement Point	Pin ⑩ of CN001 (Y REC)
Measurement Equipment	Oscilloscope
Specified Value	340 ± 40 mVp-p

Adjustment Method :

1) Confirm that the REC Y level is 340 ± 40 mVp-p.

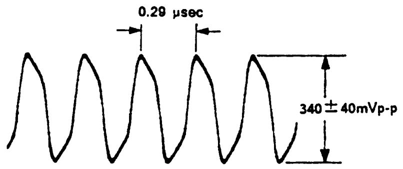


Fig. 3-9.

3-4. AUDIO SYSTEM ADJUSTMENTS

[Connection]

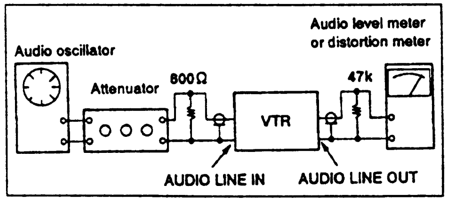


Fig. 3-10.

- Make adjustment in the SP mode.

[Adjustment Sequences]

1) ACE head adjustment
   ... See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅲ".
2) Playback output level check
3) E-E output level check
4) Recording bias adjustment
5) Overall level characteristic and distortion factor check.
6) Overall S/N check

1. ACE head adjustment

See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅲ".

2. Playback output level check

Mode	Playback
Signal	Alignment tape, 1 kHz (color bar) portion
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	-7.5 ± 2dBs

Confirmation Method :

1) Playback 1kHz portion and make sure that AUDIO LINE OUT signal level is -7.5 ± 2dBs.

3. E-E output level check

Mode	E-E
Signal	400Hz, -7.5 dBs
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	-7.5 ± 3dBs

Confirmation Method :

1) Input signal of 400 Hz, -7.5 dBs to AUDIO LINE IN.
2) Make sure that AUDIO LINE OUT signal level is -7.5 ± 3dBs.

4. Overall level characteristic and distortion factor check

Mode	Recording and playback (SP mode)
Signal	400Hz, -7.5dBs
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter and distortion meter
Specified Value	Playback level : -7.5 ± 3dBs Distortion factor : 4% or less

Confirmation Method :

1) Input audio signal of 400Hz, -7.5 dBs to AUDIO LINE IN.
2) Make recording.
3) Playback the recorded portion.
4) Make sure that playback level is -7.5 ± 3dBs.
5) Make sure that distortion factor is within 4%.

5. Over S/N check

Mode	Recording and playback (SP mode)
Signal	No signal
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	Less than -42 dBs

Confirmation Method :

1) Make no signal input.
2) Make recording.
3) Playback the recorded portion.
4) Confirm that the noise level is less than -42 dBs.

SECTION 4

SYSTEM CONTROL INTERFACE

4-1. SERVO/SYSTEM CONTROL–MICROPROCESSOR TERMINAL FUNCTION (MA2 BOARD IC501)

Pin. No.	Port	I/O	Name	Function
1	PB5/PPO13	O	RF SWP	Video switching pulse output.
2	PB4/PPO12	O	Q VD	Quasi VD pulse output.
3	PB3/PPO11	O	Q HD ENABLE	Quasi HD control.
4	PB2	O	AF REC	Not used.
5	PB1	O	REC P	"H" output when video REC (REC control).
6	PB0	O	REC	"H" output when REC.
7	PC7	O	REC CTL	REC CTL output.
8	PC6	O	INT VD	Not used.
9	PC5	O	PB	"H" when normal audio playback.
10	PC4	O	$\overline{\text{SP}}$	"L" when SP mode.
11	PC3	O	LP	"H" when LP mode.
12	PC2	O	Env GAIN	"H" when LP mode.
13	PC1	O	$\overline{\text{JOG}}$	"L" when special playback.
14	PC0	O	STEP PLS	STEP PLS Out put.
15	PJ7	O	SYSTEM 2	Not used.
16	PJ6	O	$\overline{\text{H DET}}$	
17	PJ5	O	NTSC PB	"H" when NTSC playback.
18	PJ4	O	Edit	"H" when Edit.
19	PJ3	O	S Reel FG	S Reel sensor input. TSC, "L" when special playback on PAL-M.
20	PJ2	O	T Reel FG	T Reel sensor input.
21	PJ1	O	RENTAL	"H" when RENTAL PICTURE.
22	PJ0	O	AMS	Not used.
23	PD7	I	C-OUT	Cassette switch input.
24	PD6	I	C-START	
25	PD5	I	C-IN	
26	PD4	I	REC SAF	Erasing protection tab detection.
27	PD3	O	E TAPE	"H" when E TAPE mode.
28	PD2	O	$\overline{\text{TV}}$/VTR	Not used.
29	PD1	O	LINE SEL 1	Not used.
30	PD0	O	LINE SEL 2	Not used.
31	PH7	O	TA MUTE	Not used.
32	PH6	O	PAL	
33	PH5	O	AMS Mute	
34	PH4	O	ORC ON	
35	PH3	O	CAP TRQ 1	Current drive capstan motor control.
36	PH2	O	CAP TRQ 2	
37	PH1	O	LAMP	End sensor lamp drive output.
38	PH0	O	$\overline{\text{CAP STOP}}$	Capstan STOP signal output.
39	MP	I	MP	Fixed "L" level.
40	$\overline{\text{RST}}$	I	$\overline{\text{COSMO RST}}$	System reset input.
41	Vss		Vss	GND
42	XTAL	O	XTAL	System clock 12 MHz.
43	EXTAL	I	EXTAL	
44	$\overline{\text{CS0}}$	O	$\overline{\text{COSMO CS}}$	Chip select signal.
45	SI0	I	S IN	Signal for serial communication.
46	SO0	O	S OUT 0	Signal for serial communication.
47	$\overline{\text{SCK0}}$	O	$\overline{\text{SCLK 0}}$	Clock for serial communication.
48	PF7/AN11	I	K Mode	Not used.
49	PF6/AN10	O	AFT UP	Not used.
50	PF5/AN9	I	DEST	Destination selection.
51	PF4/AN8	I	AF SW POSI	Not used.
52	AVss		AVss	UNSW GND.
53	AVREF		AVREF	AD port reference input. UNSW 5V.
54	AVDD		AVDD	UNSW 5V.
55	PF3/AF7	I	MODE4	Mechanism section CAM encoder input.
56	PF2/AN6	I	MODE3	
57	PF1/AN5	I	MODE2	
58	PF0/AN4	I	MODE1	
59	AN3	I	DEW	DEW sensor analog input.
60	AN2	I	VIDEO RF	Video RF envelope input.
61	AN1	I	AF ENV	Not used.
62	AN0	I	SW POSI	VR input for RF SWP adjustment.
63	PG7	I	T SENSOR	Take-up side end sensor input.
64	PG6	I	S SENSOR	Supply side end sensor input.
65	PG5	I	N.C.	Not used.
66	PG4/SYNC	I	V SYNC	Composite sync input.
67	PG3/$\overline{\text{PBCTL}}$	I	$\overline{\text{PB CTL}}$	Playback CTL input
68	PG2/DPG	I	DRM PG	Drum PG input.
69	PG1/DFG	I	DRM FG	Drum FG input.
70	PG0/CFG	I	CAP FG	Capstan FG input.
71	PE7	O	STEP PULS	"L" when capstan STEP is driven.
72	PE6	O	CAP RVS	Capstan reverse signal output.
73	PE5	O	CAP DA	Capstan error D/A output.
74	PE4	O	DRUM DA	Drum error D/A output.
75	PE3	O	MEM CS	EEPROM chip select.
76	PE2	O	STEP DRIVE	CTL amp step action control.
77	PE1	I	VD CTL	Playback CTL input.
78	PE0		N.C.	Not used.
79	SI1	I	AFT Dwn	
80	SO1	O	S OUT 1	
81	$\overline{\text{SCK1}}$		$\overline{\text{SCK 1}}$	
82	PI4	O	AFT UP	Not uesd.
83	PI3	O	$\overline{\text{HIFI}}$	Not used.
84	PI2/$\overline{}$PWM	O	STEREO	Not used.
85	PI1/RMC	O	HEAD CONT	Head amp IC control.
86	TEX	I	N.C.	Not used.
87	TX		N.C.	Not used.
88	Vss		Vss	GND
89	VDD		VDD	UNSW 5V.
90	N.C.		N.C.	Not used.

Pin. No.	Port	I/O	Name	Function
91	PA7	O	LOAD (–)	Loading motor control.
92	PA6	O	LOAD (+)	
93	PA5	O	A PB/REC	Normal audio bias oscillation ON/OFF.
94	PA4	O	A PB	"H" when audio playback.
95	PA3	O	A MUTE	Audio muting output. "H": muting.
96	PA2	O	$\overline{\text{V-PB}}$	"L" when video playback.
97	PA1	O	OSD Black	Not used.
98	PA0	O	CTL INDEX	Not used.
99	PB7	O	AF PB	Not used.
100	PB6/PPO14	I	AF SWP	Not used.

4-2. SYSTEM CONTROL-VIDEO BLOCK INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UN-LOAD-ING	PB	PB-PAUSE	SLOW	×2	CUE	REVIEW	REC	REC-PAUSE
$\overline{\text{V-PB}}$	MA2 Board IC501 (55)	O	H	H	H	L	L	L	L	L	L	H	H
HEAD CONT	MA2 Board IC501 (65)	O	L	L	L	L	H	*1	H	L	L	H	L
RF SW P.	MA2 Board IC501 ①	O	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
Q VD	MA2 Board IC501 ②	O	L	L	L	*3	*4	*4	*4	*4	*4	L	L
$\overline{\text{SP}}$	MA2 Board IC501 ⑩	O	*5	*5	*5	*6	*6	*6	*6	*6	*6	*5	*5
LP	MA2 Board IC501 ⑪	O	*5	*5	*5	*6	*6	*6	*6	*6	*6	*5	*5
REC. P	MA2 Board IC501 ⑤	O	L	L	L	L	L	L	L	L	L	L	H
REC	MA2 Board IC501 ⑥	O	L	L	L	L	L	L	L	L	L	H	H
V SYNC	MA2 Board IC501 (66)	I	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. "H" when tape stops. "L" when tape runs (approx. for 40 msec).
*2. Synchronized with drum rotation. 30 Hz 50% duty pulse.
*3. Normally "L". "H" when video signal is not generated.
*4. V period "H" pulse.
*5. Selected by SP/EP. SP mode: "L", EP mode: "H".
*6. Selected by tape recording mode.

sig/mod	SP	LP
SP (10)	L	H
LP (11)	L	H

*7. Composite sync signal (positive).
*8. "H" when menu screen or blue back screen.

4-3. SYSTEM CONTROL–SERVO PERIPHERAL CIRCUT INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	STOP	FF	REW	TAPE THREAD-ING	TAPE UN-THREAD-ING	PB	PB-PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC-PAUSE
REC CTL	MA2 Board IC501 ⑦	O	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*1	*14
STEP PLS	MA2 Board IC501 ⑭	O	L	*2	*2	*2	*2	*2	L	*3	*2	*2	*2	*2	L
SW POSITION *4	MA2 Board IC501 (62)	I													
$\overline{\text{PB CTL}}$	MA2 Board IC501 (67)	I	H	*5	*5			*1	H/L	*3	*5	*5	*5	*1	H
VD CTL	MA2 Board IC501 (71)	I	H	*5	*5			*1	H/L	*3	*5	*5	*5	*1	H
DRUM PG	MA2 Board IC501 (68)	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
DRUM FG	MA2 Board IC501 (69)	I	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
CAP FG	MA2 Board IC501 (70)	I	H/L	*8	*8	*9	*9	*8	H/L	*10	*8	*8	*8	*8	H/L
CAP RVS	MA2 Board IC501 (72)	O	H/L	L	H	L	H	L	L	*3	L	L	H	L	L
CAP DA *14	MA2 Board IC501 (73)	O	*11	*11	*11	*11	*11	*12	*11	*11	*12	*12	*12	*12	*11
DRUM DA *14	MA2 Board IC501 (74)	O	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13
STEP DRIVE	MA2 Board IC501 (76)	O	L	L	L	L	L	L	L	*15	L	L	L	L	L

*1. 30 Hz pulse.
*2. 3 value output of "H", "L" and Hi-Z (2.5V).
*3. Unstable period Pulse.
*4. Input terminal for video switching position adjustment.
*5. Pulse of period in proportion to tape speed.
*6. 30 Hz "H" pulse.
*7. 720 Hz pulse.
*8. Pulse of period in proportion to tape speed.
*9. Unstable period pulse.
*10. Pulse at tape running.
*11. Approx. 2 msec period "H" or "L" pulse.
*12. Approx. 1.5 msec period "H" or "L" pulse.
*13. Approx. 3 msec period "H" or "L" pulse.
*14. HI-Z (2.5V).
*15. "H" when FWD direction and STEP drive.

4-4. SYSTEM CONTROL-MECHANISM BLOCK INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREADING	TAPE UNTHREADING	STOP	FF	REW	PB	PB-PAUSE	SLOW	×2	CUE	REVIEW	REC	REC-PAUSE
LOAD (-)	MA2 Board IC501 (91)	O	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L
LOAD (+)	MA2 Board IC501 (92)	O	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L
MODE 1	MA2 Board IC501 (58)	I	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H
MODE 2	MA2 Board IC501 (57)	I	L	H	L	L	H	L	L	L	L	H	H	L	L	L	L	H
MODE 3	MA2 Board IC501 (56)	I	H	H	H	L	H	H	H	H	L	L	L	L	L	L	L	L
MODE 4	MA2 Board IC501 (54)	I	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
C-OUT	MA2 Board IC501 ㉓	I	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
C-START	MA2 Board IC501 ㉔	I	H	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H
C-IN	MA2 Board IC501 ㉕	I	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L
REC SAF	MA2 Board IC501 ㉖	I	L	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
T REEL	MA2 Board IC501 ⑳	I	H/L	H/L	H/L	H/L	H/L	H/L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
S REEL	MA2 Board IC501 ⑲	I	H/L	H/L	H/L	*2	*2	H/L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
LAMP	MA2 Board IC501 ㊲	O	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
CAP TRQ1	MA2 Board IC501 ㉟	O	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP TRQ2	MA2 Board IC501 ㊱	O	H	H	H	H	H	H	H	H	H	H	*4	H	H	H	H	H
$\overline{\text{CAP STOP}}$	MA2 Board IC501 ㊳	O	L	*5	*5	*5	*5	L	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
T SENS	MA2 Board IC501 (63)	I	*3	*3	*3	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
S SENS	MA2 Board IC501 (64)	I	*3	*3	*3	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6

*1. "L" when erasing protection tab is bent. "H" when not bent.
*2. Pulse of period in proportion to reel rotating speed.
*3. Approx. 2 msec period "H" pulse.
*4. Pulse.
*5. 3 value output of "H", "L" and "HIZ (2.5V)".
*6. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.

4-5. SYSTEM CONTROL–SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	I/O level
COSMO•RESET	MA2 Board IC501 ㊽	I	Normally "H". "L" when service interruption is detected or restored.
COSMO•CS	MA2 Board IC501 ㊹	I	Chip select signal from timer microprocessor. V period "L" pulse.
SI•BUS	MA2 Board IC501 ㊺	I	Serial communication data to timer microprocessor. V period "L" pulse.
SO•BUS	MA2 Board IC501 ㊻	O	Serial communication data to timer microprocessor. V period "L" pulse.
S CLK	MA2 Board IC501 ㊼	I	Serial communication clock with timer microprocessor. V period "L" pulse.

4-6. SYSTEM CONTROL–AUDIO BLOCK INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UN-LOAD-ING	PB	PB• PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC• PAUSE
A PB	MA2 Board IC501 (54)	O	L	L	L	H	H	H	H	H	H	L	L
A MUTE	MA2 Board IC501 (55)	O	L	L	L	L	H	H	H	H	H	L	L
A PB/REC	MA2 Board IC501 (53)	O	L	L	L	L	L	L	L	L	L	H	L
$\overline{SP}$	MA2 Board IC501 ⑩	O	*1	*1	*1	*2	*2	*2	*2	*2	*2	*1	*1

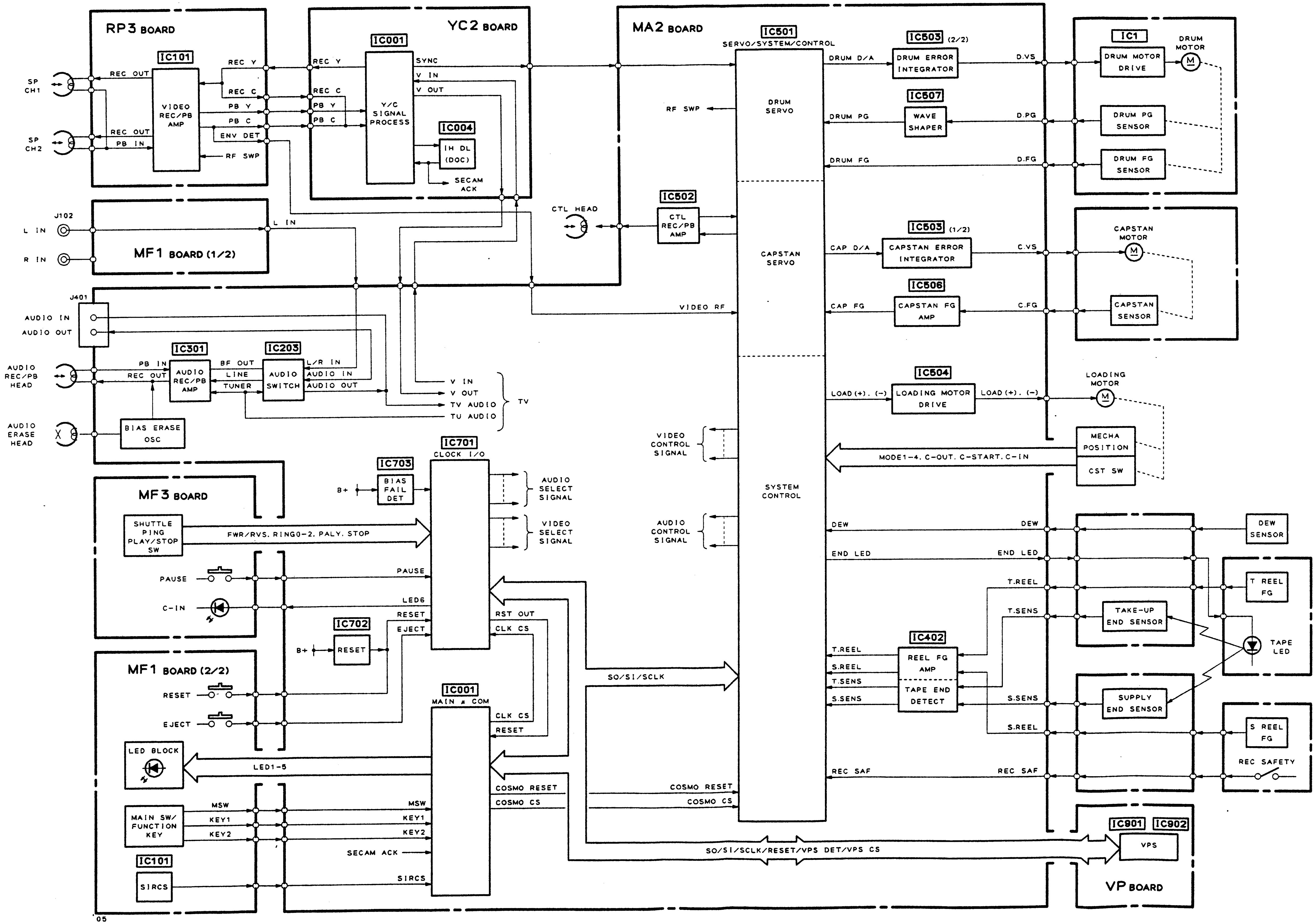
*1. Selected by SP/EP selector. SP mode: "L", EP mode: "H".

*2. Selected by tape recording mode. SP mode: "L", EP mode: "H".

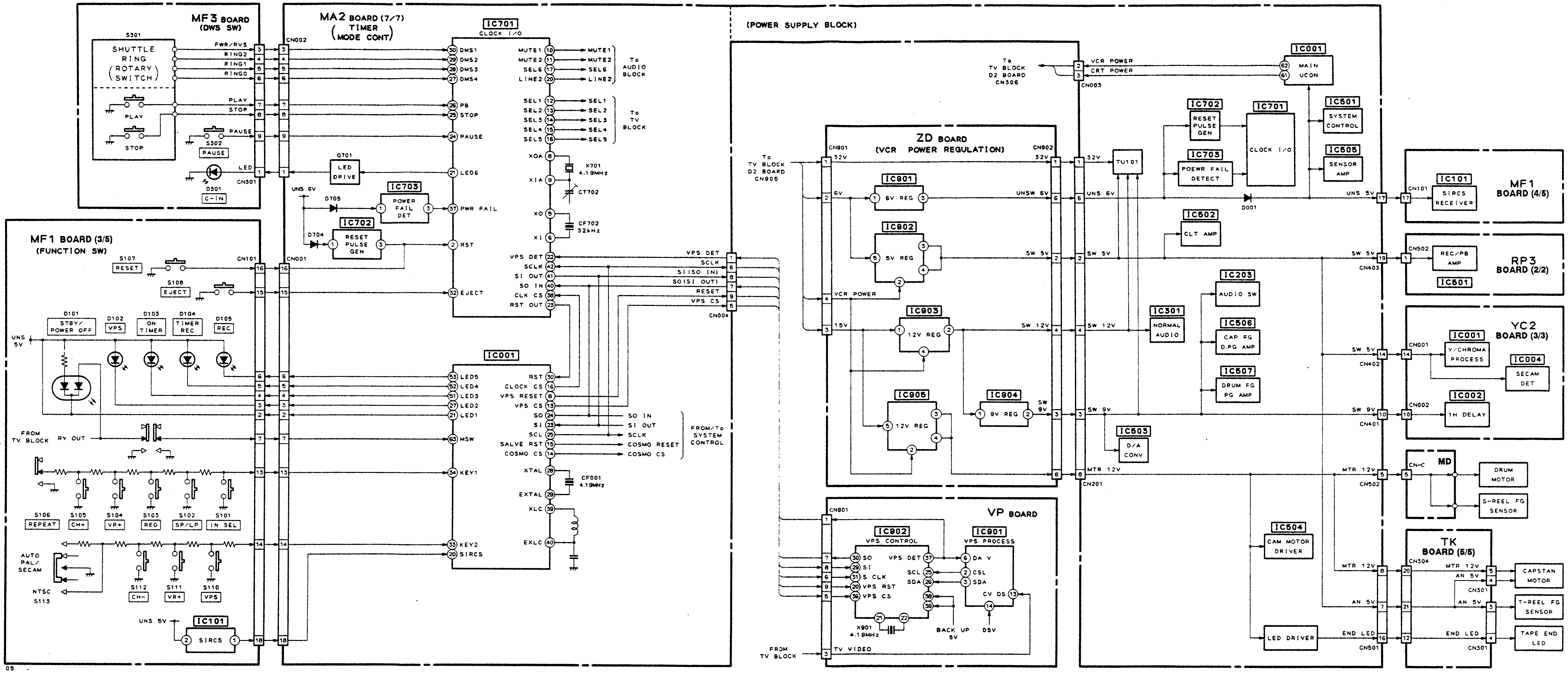
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAMS (VIDEO SECTION)

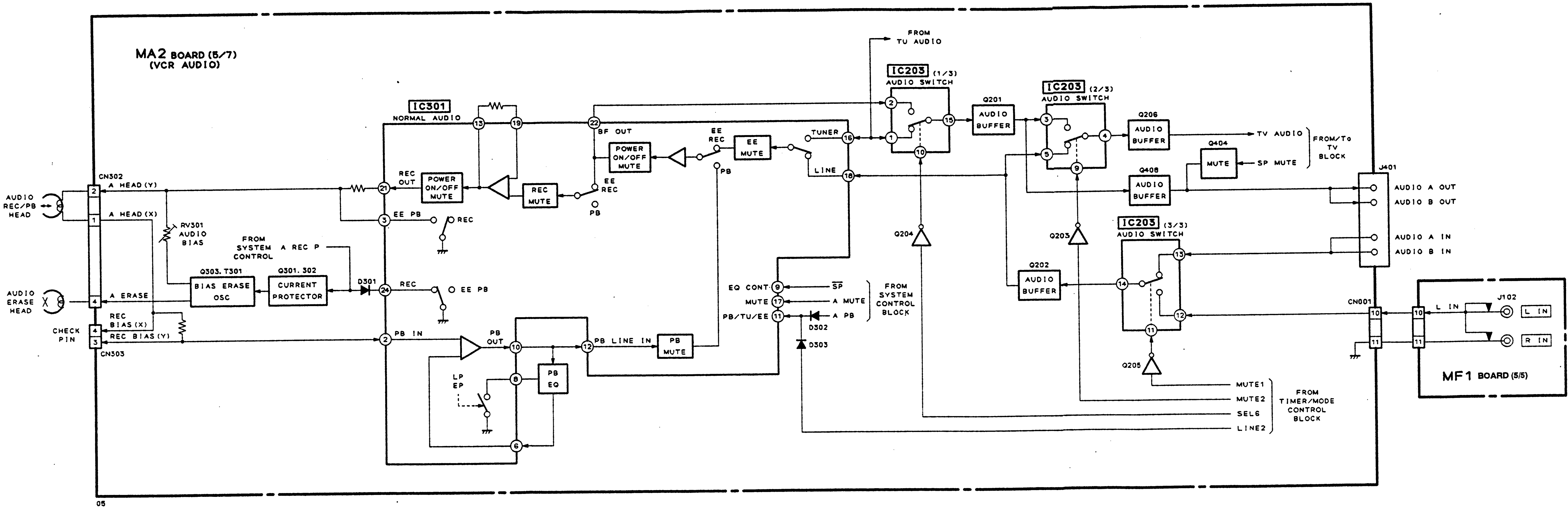
(1) VCR Overall Block Diagram


RP3 BOARD
IC101
VIDEO REC/PB AMP
SP CH1
SP CH2
REC OUT
REC OUT
PB IN
REC Y
REC C
PB Y
PB C
ENV DET
RF SWP
YC2 BOARD
IC001
Y/C SIGNAL PROCESS
SYNC
V IN
V OUT
IC004
1H DL (DOC)
SECAM ACK
MA2 BOARD
IC501
SERVO/SYSTEM/CONTROL
DRUM SERVO
CAPSTAN SERVO
SYSTEM CONTROL
RF SWP
IC502
CTL REC/PB AMP
CTL HEAD
VIDEO RF
DRUM D/A
DRUM PG
DRUM FG
CAP D/A
CAP FG
LOAD (+), (−)
IC503 (2/2)
DRUM ERROR INTEGRATOR
IC507
WAVE SHAPER
IC503 (1/2)
CAPSTAN ERROR INTEGRATOR
IC506
CAPSTAN FG AMP
IC504
LOADING MOTOR DRIVE
D.VS
D.PG
D.FG
C.VS
C.FG
IC1
DRUM MOTOR DRIVE
DRUM MOTOR
DRUM PG SENSOR
DRUM FG SENSOR
CAPSTAN MOTOR
CAPSTAN SENSOR
LOADING MOTOR
MECHA POSITION
CST SW
MODE1-4, C-OUT, C-START, C-IN
J102
L IN
R IN
MF1 BOARD (1/2)
J401
AUDIO IN
AUDIO OUT
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
IC301
AUDIO REC/PB AMP
PB IN
BF OUT
LINE
TUNER
IC203
AUDIO SWITCH
L/R IN
AUDIO IN
AUDIO OUT
BIAS ERASE OSC
V IN
V OUT
TV AUDIO
TU AUDIO
TV
IC701
CLOCK I/O
IC703
BIAS FAIL DET
B+
AUDIO SELECT SIGNAL
VIDEO SELECT SIGNAL
VIDEO CONTROL SIGNAL
AUDIO CONTROL SIGNAL
MF3 BOARD
SHUTTLE PING PLAY/STOP SW
FWR/RVS, RINGO-2, PALY, STOP
PAUSE
C-IN
LED6
RESET
EJECT
RST OUT
CLK CS
IC702
RESET
SO/SI/SCLK
MF1 BOARD (2/2)
RESET
EJECT
IC001
MAIN μ COM
LED BLOCK
LED1-5
COSMO RESET
COSMO CS
MAIN SW/ FUNCTION KEY
MSW
KEY1
KEY2
SECAM ACK
IC101
SIRCS
SO/SI/SCLK/RESET/VPS DET/VPS CS
DEW
END LED
T.REEL
T.SENS
S.SENS
S.REEL
REC SAF
IC402
REEL FG AMP
TAPE END DETECT
DEW SENSOR
T REEL FG
TAKE-UP END SENSOR
TAPE LED
SUPPLY END SENSOR
S REEL FG
REC SAFETY
IC901
IC902
VPS
VP BOARD
05

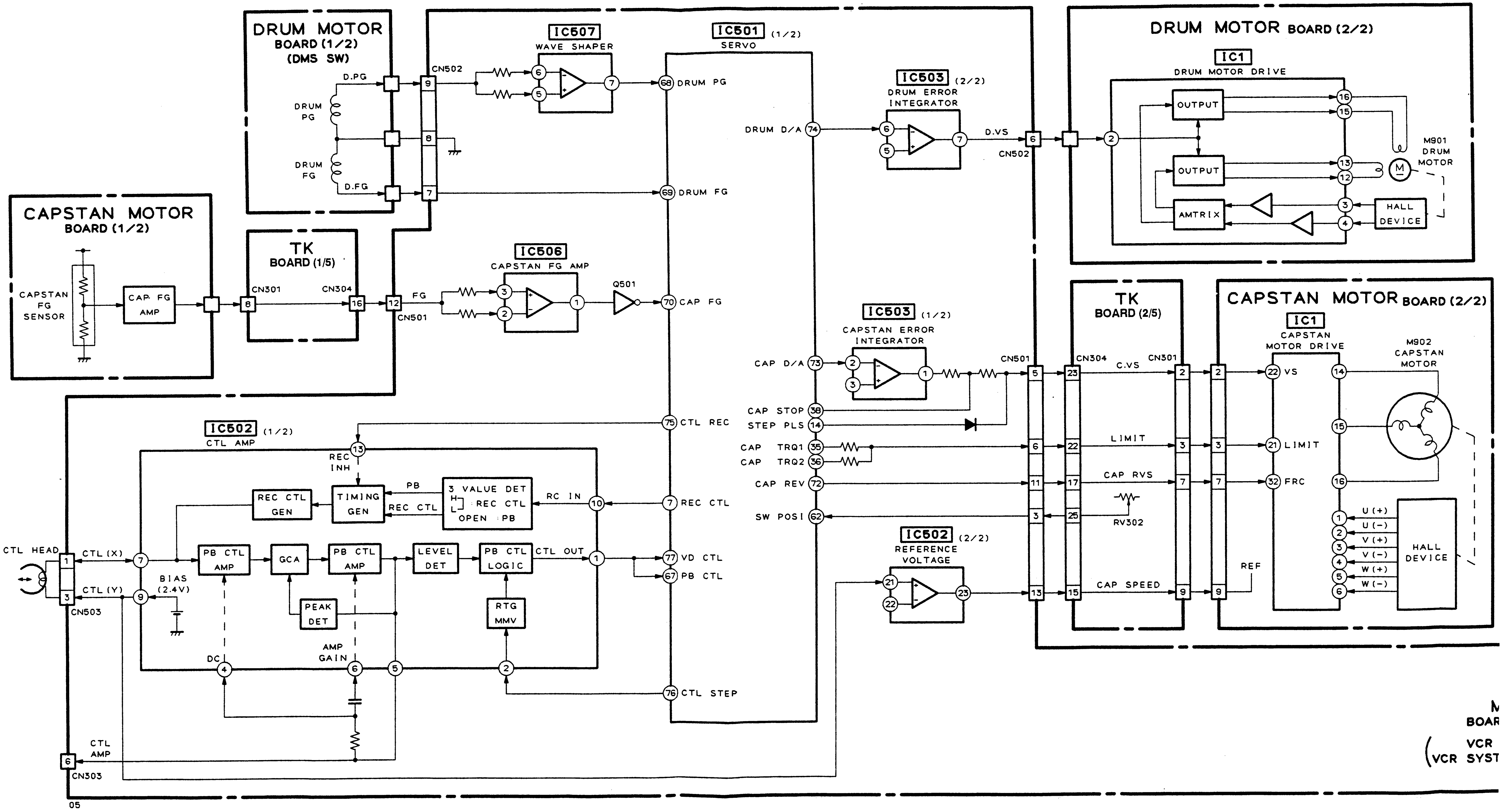
(2) Power Block Diagram

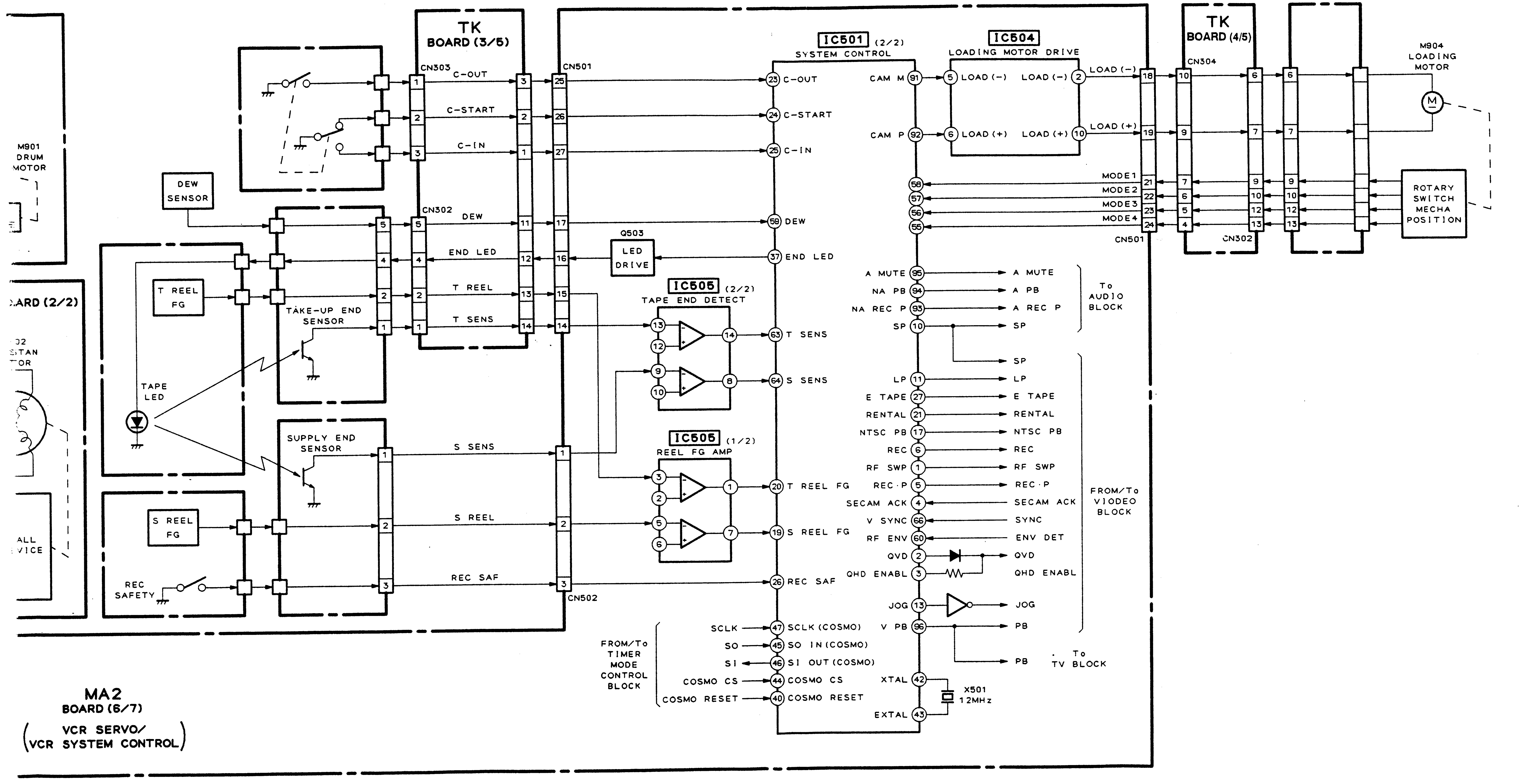

MF3 BOARD (DWS SW)
S301
SHUTTLE RING (ROTARY SWITCH)
FWR/RVS
RING2
RING1
RING0
PLAY
STOP
PAUSE
S302 PAUSE
LED
D301 C-IN
CN301
MA2 BOARD (7/7) (TIMER MODE CONT)
CN002
IC701 CLOCK I/O
DMS1
DMS2
DMS3
DMS4
PB
STOP
PAUSE
LED6
PWR FAIL
RST
EJECT
MUTE1
MUTE2
SEL6
LINE2
To AUDIO BLOCK
SEL1
SEL2
SEL3
SEL4
SEL5
To TV BLOCK
XOA
XIA
X701 4.19MHz
CT702
XO
XI
CF702 32kHz
VPS DET
SCLK
SI OUT
SO IN
CLK CS
RST OUT
Q701 LED DRIVE
UNS 6V
D705
D704
IC703 POWER FAIL DET
IC702 RESET PULSE GEN
SI(SO IN)
SO(SI OUT)
RESET
VPS CS
CN004
CN001
IC001
LED5
LED4
LED3
LED2
LED1
MSW
KEY1
KEY2
SIRCS
RST
CLOCK CS
VPS RESET
VPS CS
SO
SI
SCL
SALVE RST
COSMO CS
XTAL
CF001 4.19MHz
EXTAL
XLC
EXLC
SO IN
SI OUT
SCLK
COSMO RESET
COSMO CS
FROM/To SYSTEM CONTROL
MF1 BOARD (3/5) (FUNCTION SW)
S107 RESET
S108 EJECT
CN101
D101 STBY/POWER OFF
D102 VPS
D103 ON TIMER
D104 TIMER REC
D105 REC
UNS 5V
FROM TV BLOCK
RY OUT
S106 REPEAT
S105 CH+
S104 VR+
S103 REC
S102 SP/LP
S101 IN SEL
AUTO PAL/SECAM
NTSC S113
S112 CH-
S111 VR+
S110 VPS
UNS 5V
IC101 SIRCS
(POWER SUPPLY BLOCK)
To TV BLOCK D2 BOARD CN306
VCR POWER
CRT POWER
CN003
IC001 MAIN uCON
IC702 RESET PULSE GEN
IC701 CLOCK I/O
IC501 SYSTEM CONTROL
IC703 POEWR FAIL DETECT
IC505 SENSOR AMP
TU101
D001
IC502 CLT AMP
To TV BLOCK D2 BOARD CN905
ZD BOARD (VCR POWER REGULATION)
CN901
CN902
32V
6V
UNSW 6V
IC901 6V REG
IC902 5V REG
SW 5V
VCR POWER
15V
IC903 12V REG
SW 12V
IC905 12V REG
IC904 9V REG
SW 9V
UNS 6V
MTR 12V
CN201
IC203 AUDIO SW
IC301 NORMAL AUDIO
IC506 CAP FG D.PG AMP
IC507 DRUM FG PG AMP
IC503 D/A CONV
IC504 CAM MOTOR DRIVER
LED DRIVER
VP BOARD
IC902 VPS CONTROL
IC901 VPS PROCESS
SO
SI
S CLK
VPS RST
VPS CS
VPS DET
SCL
SDA
DA V
CSL
CV DS
X901 4.19MHz
BACK UP 5V
D5V
FROM TV BLOCK
TV VIDEO
UNS 5V
CN101
MF1 BOARD (4/5)
IC101 SIRCS RECEIVER
SW 5V
CN403
CN502
REC/PB AMP
RP3 BOARD (2/2)
IC501
CN402
CN001
IC001 Y/CHROMA PROCESS
YC2 BOARD (3/3)
IC004 SECAM DET
CN401
CN002
IC002 1H DELAY
MD
CN-C
DRUM MOTOR
S-REEL FG SENSOR
CN502
TK BOARD (5/5)
CN304
MTR 12V
CAPSTAN MOTOR
AN 5V
CN301
T-REEL FG SENSOR
END LED
CN501
TAPE END LED
05

(3) Audio Block Diagram

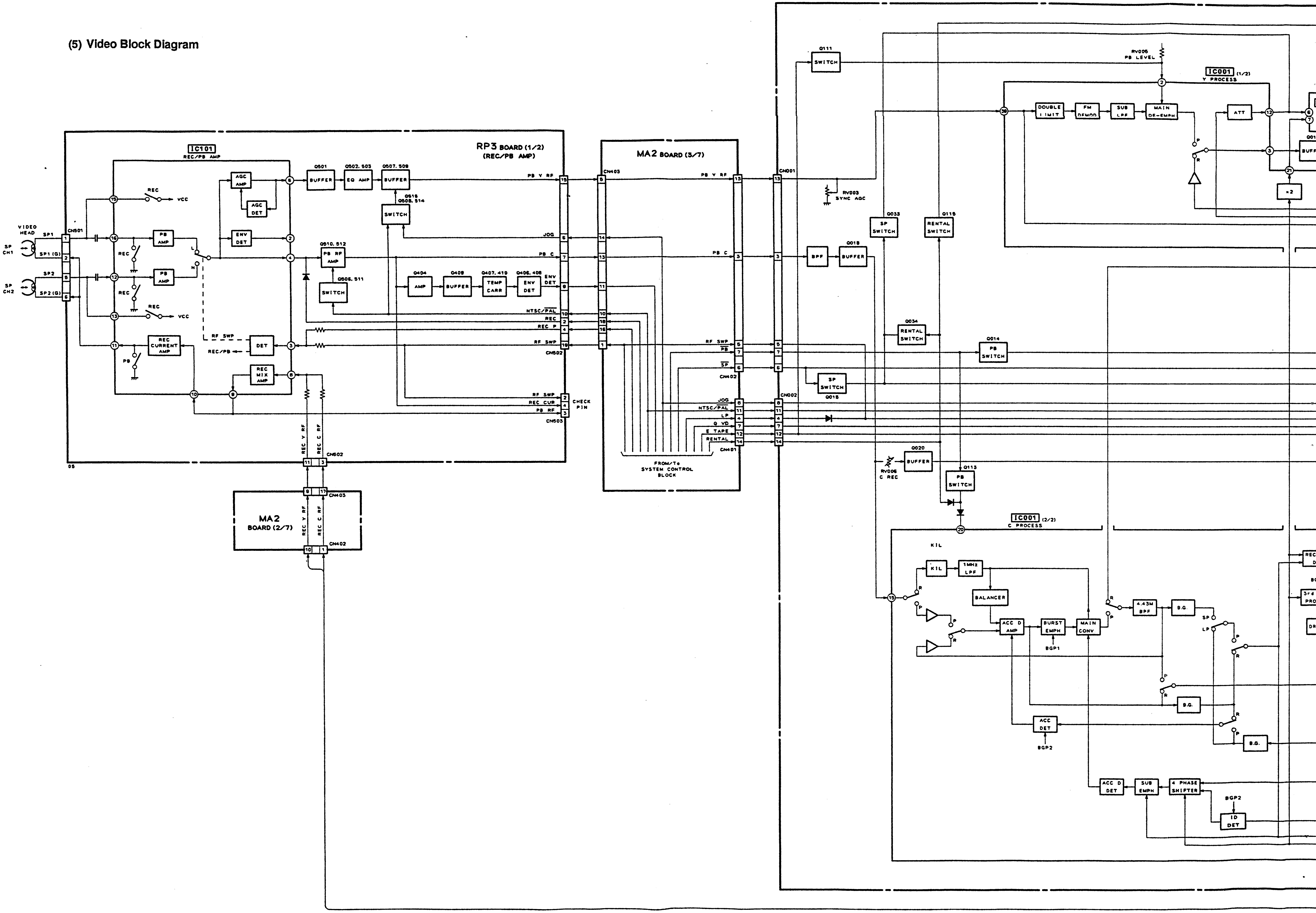

MA2 BOARD (5/7)
(VCR AUDIO)
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
CHECK PIN
CN302
CN303
A HEAD (Y)
A HEAD (X)
A ERASE
REC BIAS (X)
REC BIAS (Y)
RV301 AUDIO BIAS
FROM SYSTEM CONTROL
A REC P
Q303, T301
BIAS ERASE OSC
Q301, 302
CURRENT PROTECTOR
D301
IC301
NORMAL AUDIO
REC OUT
POWER ON/OFF MUTE
REC MUTE
EE PB
REC
PB IN
PB OUT
LP EP
PB EQ
PB LINE IN
PB MUTE
BF OUT
EE REC
PB
EE MUTE
TUNER
LINE
EQ CONT
MUTE
PB/TU/EE
SP
A MUTE
A PB
D302
D303
FROM SYSTEM CONTROL BLOCK
FROM TU AUDIO
IC203 (1/3)
AUDIO SWITCH
Q201
AUDIO BUFFER
Q204
IC203 (2/3)
AUDIO SWITCH
Q203
Q206
AUDIO BUFFER
TV AUDIO
Q404
MUTE
SP MUTE
FROM/To TV BLOCK
Q408
AUDIO BUFFER
IC203 (3/3)
AUDIO SWITCH
Q202
AUDIO BUFFER
Q205
MUTE1
MUTE2
SEL6
LINE2
FROM TIMER/MODE CONTROL BLOCK
J401
AUDIO A OUT
AUDIO B OUT
AUDIO A IN
AUDIO B IN
CN001
J102
L IN
R IN
MF1 BOARD (5/5)
05

(4) Servo/System Control Block Diagram

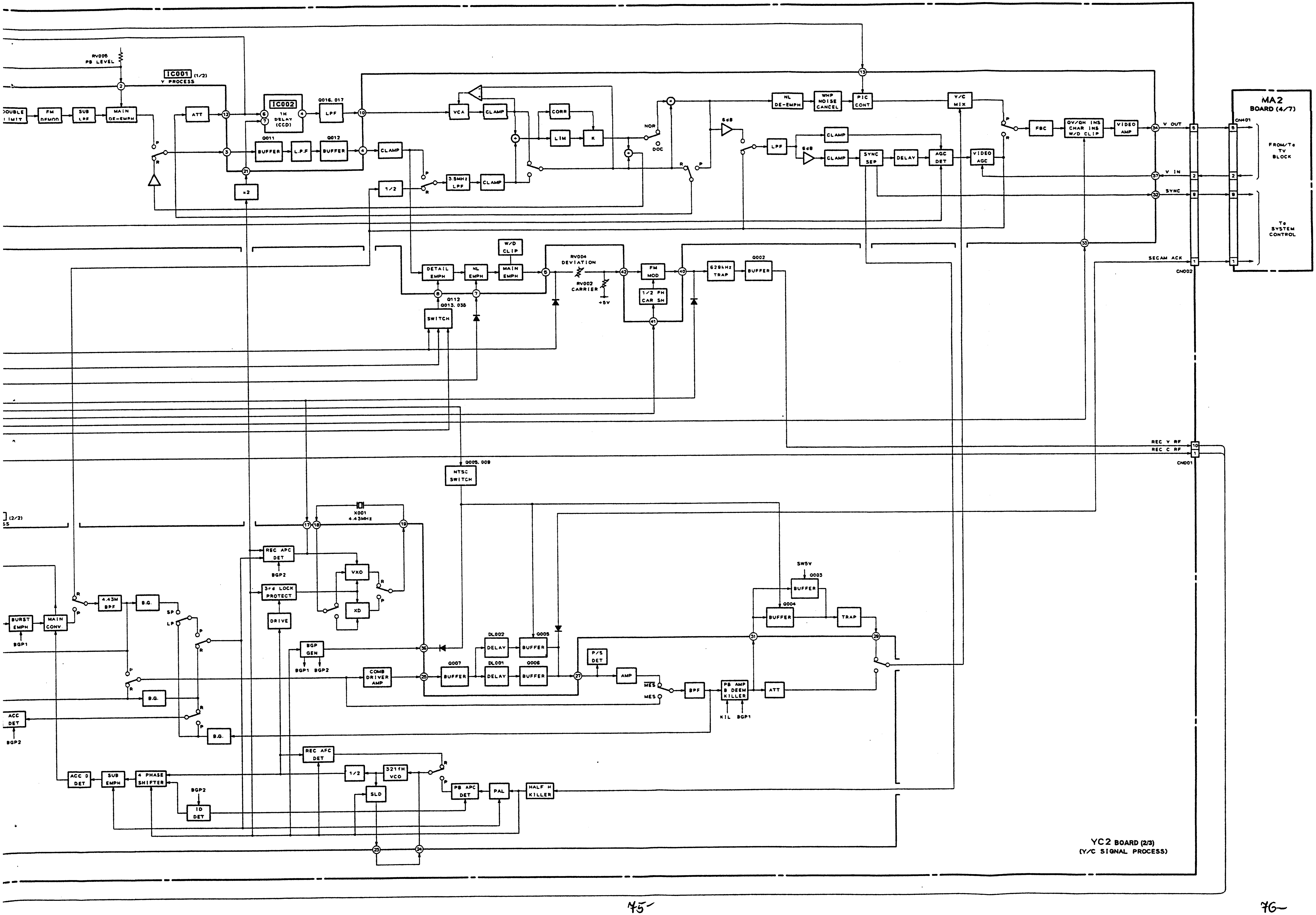

DRUM MOTOR BOARD (1/2) (DMS SW)
D.PG
DRUM PG
DRUM FG
D.FG
CN502
IC507
WAVE SHAPER
IC501 (1/2)
SERVO
DRUM PG
DRUM FG
DRUM D/A
IC503 (2/2)
DRUM ERROR INTEGRATOR
D.VS
DRUM MOTOR BOARD (2/2)
IC1
DRUM MOTOR DRIVE
OUTPUT
OUTPUT
AMTRIX
HALL DEVICE
M901 DRUM MOTOR
CAPSTAN MOTOR BOARD (1/2)
CAPSTAN FG SENSOR
CAP. FG AMP
TK BOARD (1/5)
CN301
CN304
FG
CN501
IC506
CAPSTAN FG AMP
Q501
CAP FG
IC503 (1/2)
CAPSTAN ERROR INTEGRATOR
CAP D/A
CAP STOP
STEP PLS
CAP TRQ1
CAP TRQ2
CAP REV
SW POSI
TK BOARD (2/5)
CN304
CN301
C.VS
LIMIT
CAP RVS
RV302
CAP SPEED
CAPSTAN MOTOR BOARD (2/2)
IC1
CAPSTAN MOTOR DRIVE
VS
LIMIT
FRC
REF
M902 CAPSTAN MOTOR
U(+)
U(-)
V(+)
V(-)
W(+)
W(-)
HALL DEVICE
IC502 (2/2)
REFERENCE VOLTAGE
IC502 (1/2)
CTL AMP
CTL REC
REC INH
PB
TIMING GEN
REC CTL GEN
REC CTL
3 VALUE DET
H
L
REC CTL
OPEN PB
RC IN
REC CTL
CTL HEAD
CTL (X)
CTL (Y)
CN503
BIAS (2.4V)
PB CTL AMP
GCA
PB CTL AMP
LEVEL DET
PB CTL LOGIC
CTL OUT
VD CTL
PB CTL
PEAK DET
RTG MMV
DC
AMP GAIN
CTL STEP
CTL AMP
CN303
05
M
BOAR
VCR
VCR SYST


M901
DRUM
MOTOR
ARD (2/2)
02
STAN
OR
ALL
VICE
DEW SENSOR
TK
BOARD (3/5)
CN303
C-OUT
C-START
C-IN
CN302
DEW
END LED
T REEL
T SENS
CN501
T REEL FG
TAKE-UP END SENSOR
TAPE LED
SUPPLY END SENSOR
S REEL FG
REC SAFETY
S SENS
S REEL
REC SAF
CN502
Q503
LED DRIVE
IC505 (2/2)
TAPE END DETECT
IC505 (1/2)
REEL FG AMP
IC501 (2/2)
SYSTEM CONTROL
C-OUT
C-START
C-IN
DEW
END LED
T SENS
S SENS
T REEL FG
S REEL FG
REC SAF
CAM M
CAM P
A MUTE
NA PB
NA REC P
SP
LP
E TAPE
RENTAL
NTSC PB
REC
RF SWP
REC·P
SECAM ACK
V SYNC
RF ENV
QVD
QHD ENABL
JOG
V PB
XTAL
EXTAL
X501
12MHz
SCLK
SO
SI
COSMO CS
COSMO RESET
SCLK (COSMO)
SO IN (COSMO)
SI OUT (COSMO)
COSMO CS
COSMO RESET
FROM/To TIMER MODE CONTROL BLOCK
IC504
LOADING MOTOR DRIVE
LOAD (-)
LOAD (+)
MODE1
MODE2
MODE3
MODE4
CN501
A MUTE
A PB
A REC P
SP
To AUDIO BLOCK
SP
LP
E TAPE
RENTAL
NTSC PB
REC
RF SWP
REC·P
SECAM ACK
SYNC
ENV DET
QVD
QHD ENABL
JOG
PB
FROM/To VIODEO BLOCK
PB
To TV BLOCK
TK
BOARD (4/5)
CN304
CN302
M904
LOADING
MOTOR
M
ROTARY SWITCH MECHA POSITION
MA2
BOARD (6/7)
(VCR SERVO/ VCR SYSTEM CONTROL)

(5) Video Block Diagram

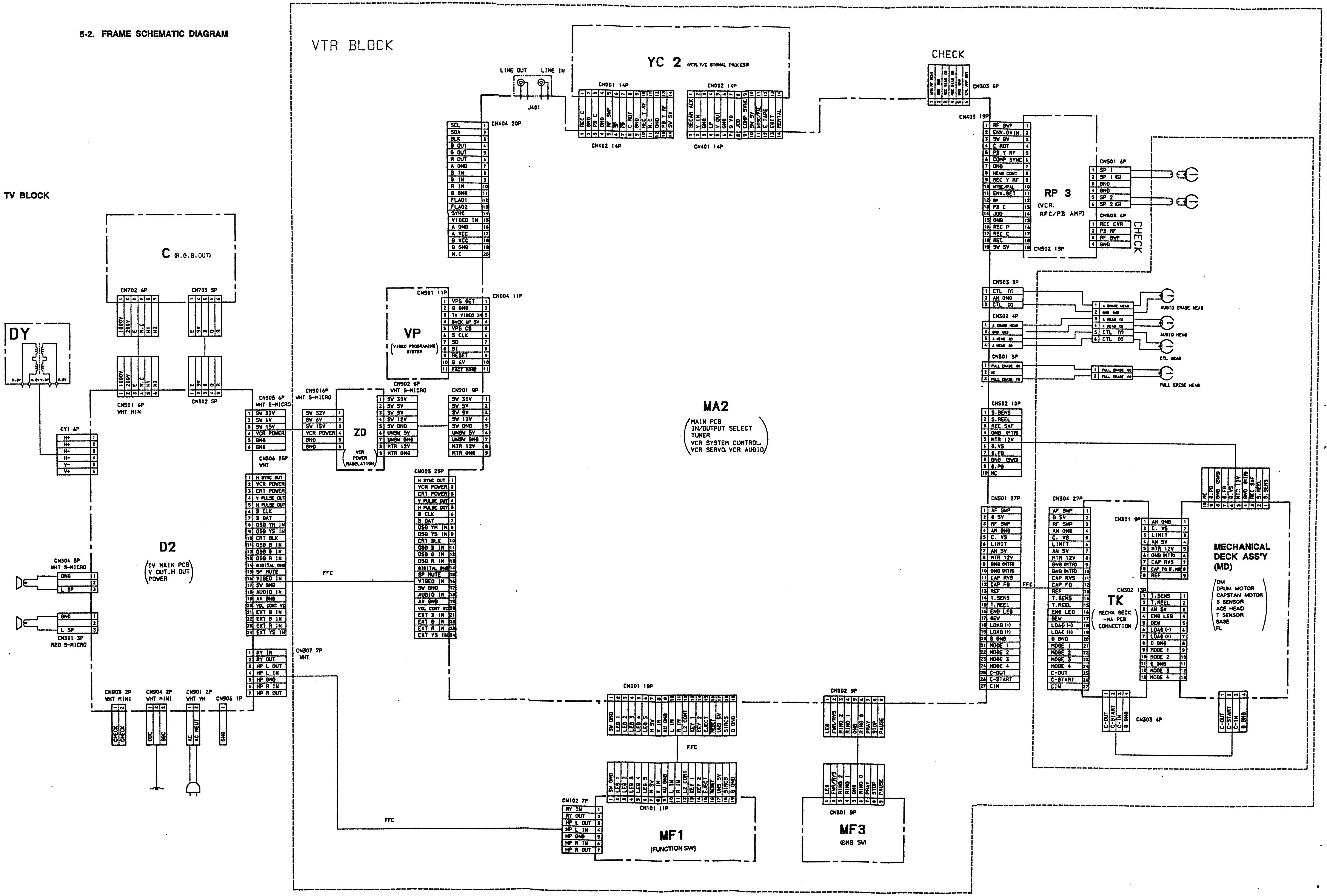


VIDEO HEAD
SP CH1
SP CH2
SP1
SP1 (G)
SP2
SP2 (G)
CN501
IC101
REC/PB AMP
RP3 BOARD (1/2)
(REC/PB AMP)
REC
VCC
PB AMP
AGC AMP
AGC DET
ENV DET
REC CURRENT AMP
REC MIX AMP
DET
RF SWP
REC/PB
Q501
BUFFER
Q502, 503
EQ AMP
Q507, 509
BUFFER
Q515
Q508, 514
SWITCH
Q510, 512
PB RF AMP
Q506, 511
SWITCH
Q404
AMP
Q409
BUFFER
Q407, 410
TEMP CARR
Q406, 408
ENV DET
PB Y RF
JOG
PB C
ENV DET
NTSC/PAL
REC
REC P
RF SWP
CN502
RF SWP
REC CUR
PB RF
CHECK PIN
CN503
REC Y RF
REC C RF
CN602
MA2 BOARD (2/7)
CN403
CN402
MA2 BOARD (5/7)
CN403
PB Y RF
PB C
RF SWP
PB
SP
CN402
JOG
NTSC/PAL
LP
Q VD
E TAPE
RENTAL
CN401
FROM/To SYSTEM CONTROL BLOCK
CN001
CN002
Q111
SWITCH
RV003
SYNC AGC
RV005
PB LEVEL
IC001 (1/2)
Y PROCESS
DOUBLE LIMIT
FM DEMOD
SUB LPF
MAIN DE-EMPH
ATT
BUFF
×2
Q033
SP SWITCH
Q115
RENTAL SWITCH
BPF
Q019
BUFFER
Q034
RENTAL SWITCH
Q014
PB SWITCH
SP SWITCH
Q018
Q020
BUFFER
RV006
C REC
Q113
PB SWITCH
IC001 (2/2)
C PROCESS
KIL
1MHz LPF
BALANCER
ACC D AMP
BURST EMPH
BGP1
MAIN CONV
4.43M BPF
B.G.
ACC DET
BGP2
ACC D DET
SUB EMPH
4 PHASE SHIFTER
ID DET
BGP2
3rd PRO

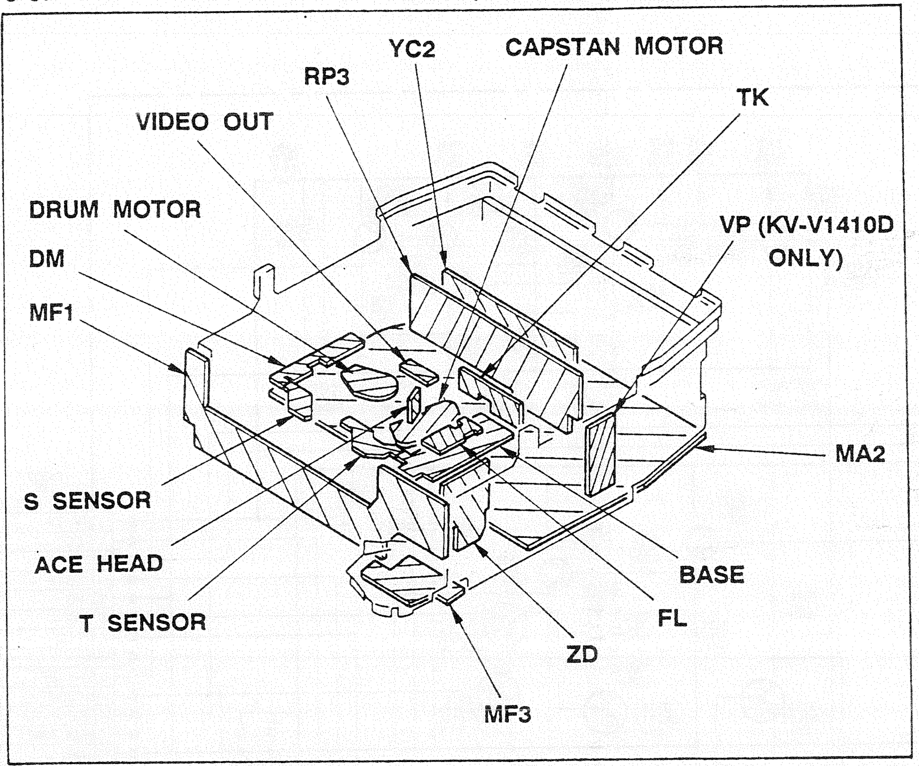

RV005
PB LEVEL
IC001 (1/2)
Y PROCESS
DOUBLE LIMIT
FM DEMOD
SUB LPF
MAIN DE-EMPH
ATT
IC002
1H DELAY (CCD)
Q016, 017
LPF
Q011
BUFFER
L.P.F
Q012
BUFFER
CLAMP
×2
1/2
3.5MHz LPF
CLAMP
VCA
CLAMP
CORR
LIM
K
NOR
DOC
6dB
LPF
6dB
CLAMP
CLAMP
SYNC SEP
DELAY
AGC DET
VIDEO AGC
NL DE-EMPH
WHP NOISE CANCEL
PIC CONT
Y/C MIX
FBC
QV/QH INS CHAR INS W/D CLIP
VIDEO AMP
V OUT
V IN
SYNC
SECAM ACK
CN401
CN002
MA2
BOARD (4/7)
FROM/To TV BLOCK
To SYSTEM CONTROL
W/D CLIP
DETAIL EMPH
NL EMPH
MAIN EMPH
RV004
DEVIATION
RV002
CARRIER
+5V
FM MOD
1/2 FH CAR SH
629kHz TRAP
Q002
BUFFER
Q112
Q013, 035
SWITCH
REC Y RF
REC C RF
CN001
Q005, 009
NTSC SWITCH
X001
4.43MHz
(2/2)
REC APC DET
BGP2
VXO
XO
3rd LOCK PROTECT
DRIVE
BGP GEN
BGP1
BGP2
BURST EMPH
BGP1
MAIN CONV
4.43M BPF
B.G.
SP
LP
B.G.
B.G.
ACC DET
BGP2
COMB DRIVER AMP
Q007
BUFFER
DL002
DELAY
DL001
DELAY
Q005
BUFFER
Q006
BUFFER
P/S DET
AMP
MES
MES
BPF
PB AMP B DEEM KILLER
KIL
BGP1
ATT
SW5V
Q003
BUFFER
Q004
BUFFER
TRAP
REC AFC DET
1/2
321fH VCO
SLD
PB APC DET
PAL
HALF H KILLER
ACC D DET
SUB EMPH
4 PHASE SHIFTER
BGP2
ID DET
P
R

YC2 BOARD (2/3)
(Y/C SIGNAL PROCESS)

5-2. FRAME SCHEMATIC DIAGRAM


VTR BLOCK
TV BLOCK
YC 2 (VCR Y/C SIGNAL PROCESS)
CHECK
LINE OUT
LINE IN
J401
CN001 14P
CN002 14P
CN402 14P
CN401 14P
CN404 20P
CN303 6P
CN403 19P
RP 3 (VCR. RFC/PB AMP)
CN501 6P
CN505 6P
CN502 19P
C (R.G.B.OUT)
CN702 6P
CN703 5P
DY
CN501 6P WHT MIN
CN302 5P
DY1 6P
VP (VIDEO PROGRAMING SYSTEM)
CN901 11P
CN004 11P
CN902 9P WHT S-MICRO
CN9016P WHT S-MICRO
ZD (VCR POWER RAGELATION)
CN201 9P
CN905 6P WHT S-MICRO
CN306 25P WHT
CN003 25P
MA2 (MAIN PCB IN/OUTPUT SELECT TUNER VCR SYSTEM CONTROL VCR SERVO, VCR AUDIO)
D2 (TV MAIN PCB V OUT.H OUT POWER)
CN304 3P WHT S-MICRO
CN301 3P RED S-MICRO
FFC
CN307 7P WHT
CN903 2P WHT MINI
CN904 2P WHT MINI
CN901 2P WHT VH
CN906 1P
CN503 3P
CN302 4P
CN301 3P
AUDIO ERASE HEAD
AUDIO HEAD
CTL HEAD
FULL ERESE HEAD
CN502 10P
CN501 27P
CN304 27P
CN301 9P
CN302 13P
TK (MECHA DECK -MA PCB CONNECTION)
MECHANICAL DECK ASS'Y (MD)
(DM DRUM MOTOR CAPSTAN MOTOR S SENSOR ACE HEAD T SENSOR BASE FL)
CN303 4P
CN001 19P
CN002 9P
CN101 11P
CN102 7P
MF1 (FUNCTION SW)
CN301 9P
MF3 (DMS SW)

5-3. CIRCUIT BOARDS LOCATION (VIDEO SECTION)



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS (VIDEO SECTION)

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  kΩ =1000Ω, MΩ =1000KΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power ¼ W (CHIP: 1/10W)
- ⊟ : nonflammable resistor.
- △ : internal component.
- ☐ : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a 10MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- * : Can not be measured.
- Circled numbers are waveform references.
- ━━━ : B+ bus.
- ━ ━ ━ : B – bus.
- no mark : REC/PB mode (SP)
  ( ) : REC mode (SP)
  < > : PB mode (SP)
  [ ] : RF
- ▨ : signal path.

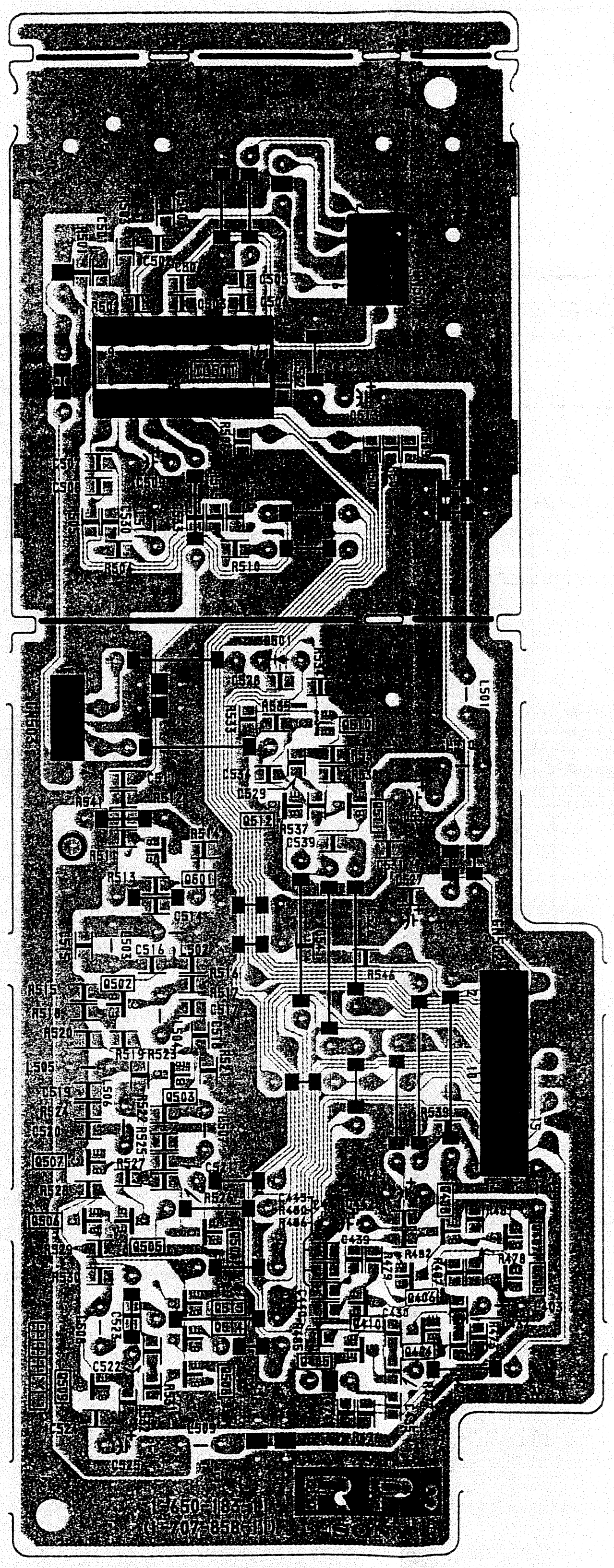
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Reference information

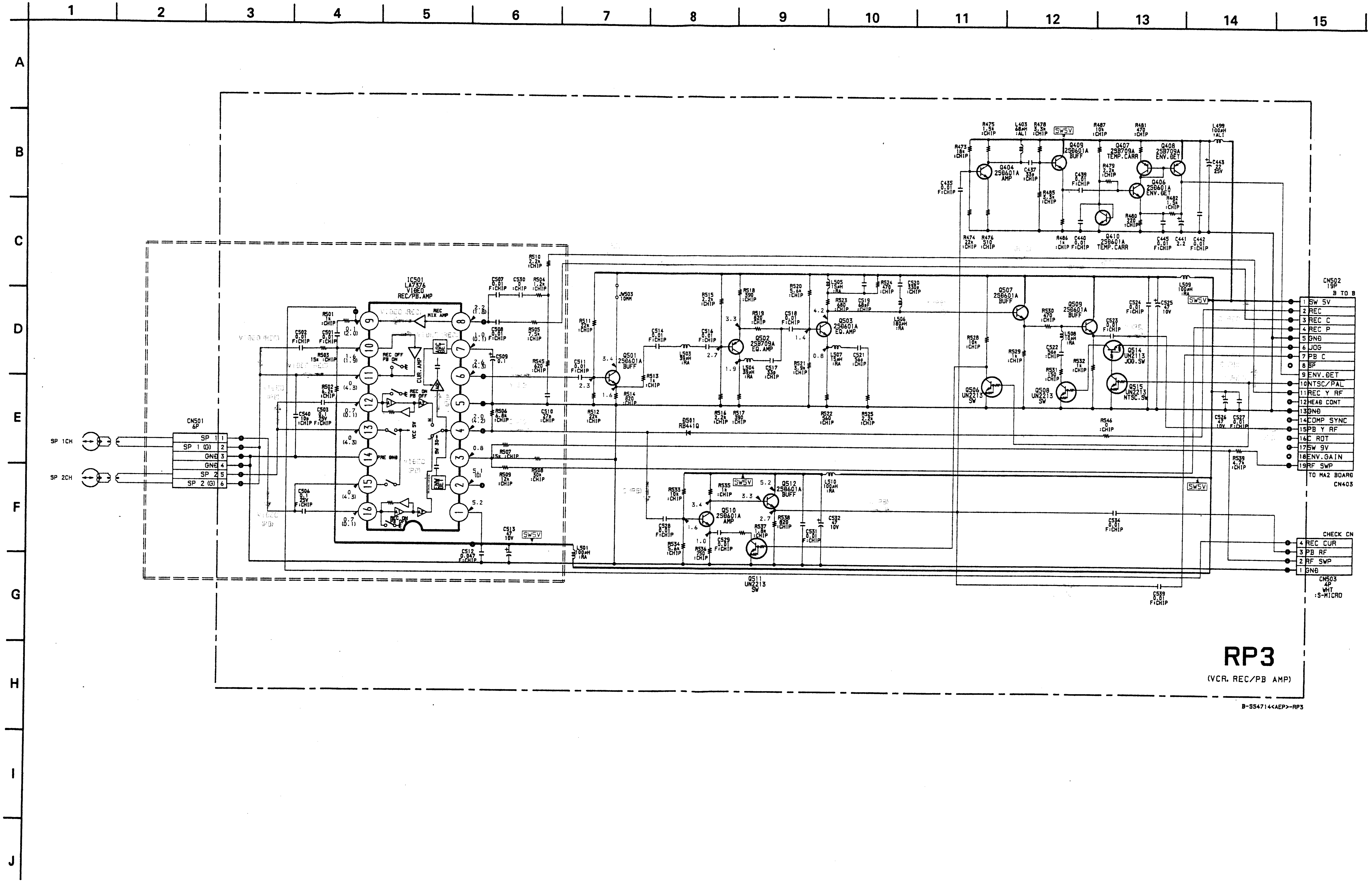
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

RP3 [VCR, REC/PB AMP]

– RP3 Board –



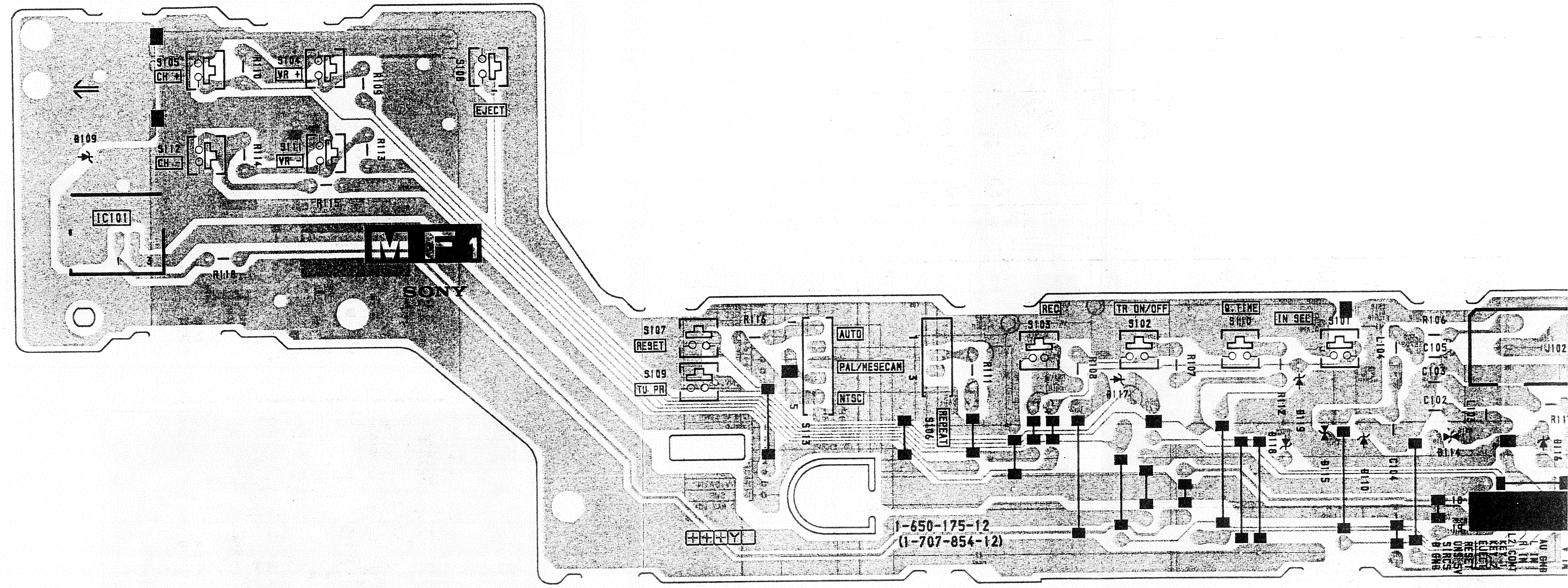
(1) Schematic Diagram of RP3 Board


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
SP 1CH
SP 2CH
CN501
6P
1 SP 1
2 SP 1 (G)
3 GND
4 GND
5 SP 2
6 SP 2 (G)
IC501
LA7376
VIDEO
REC/PB.AMP
REC
MIX AMP
REC OFF
PB ON
CUR.AMP
AGC
DET
AGC
REC ON
PB OFF
VCC 5V
SW 30
PRE GND
ENV
DET
A1
A2
H
L
R501
1k
:CHIP
C502
0.01
F:CHIP
C501
0.01
F:CHIP
R503
15k :CHIP
R502
6.2k
:CHIP
C540
10p
:CHIP
C503
0.1
25V
F:CHIP
C506
0.1
25V
F:CHIP
0.1
(2.0)
1.6
(1.9)
0
(4.3)
0.7
(0.1)
2.2
(1.8)
1.0
(0.1)
2.6
(4.3)
2.0
(4.2)
0.8
5.1
(0)
5.2
C507
0.01
F:CHIP
C530
0
:CHIP
R504
1.2k
:CHIP
R510
2.2k
:CHIP
C508
0.01
F:CHIP
R505
7.5k
:CHIP
C509
0.1
R545
620
:CHIP
R506
6.8k
:CHIP
C510
27p
:CHIP
R507
15k :CHIP
R509
12k
:CHIP
R508
30k
:CHIP
C513
47
10V
SW5V
C512
0.047
F:CHIP
L501
100µH
:RA
C511
0.01
F:CHIP
2.3
R511
22k
:CHIP
R512
22k
:CHIP
JW503
10MM
Q501
2SD601A
BUFF
3.4
1.6
R514
820
:CHIP
R513
1k
:CHIP
C514
0.01
F:CHIP
L503
39µH
:RA
C516
0.01
F:CHIP
2.7
R515
2.2k
:CHIP
R518
390
:CHIP
3.3
1.9
Q502
2SB709A
EQ.AMP
R519
820
:CHIP
L504
39µH
:RA
C517
33p
:CHIP
R516
2.2k
:CHIP
R517
390
:CHIP
D501
RB441Q
R520
5.6k
:CHIP
C518
0.01
F:CHIP
1.4
R521
3.9k
:CHIP
Q503
2SD601A
EQ.AMP
4.2
0.8
L505
15µH
:RA
R523
680
:CHIP
C519
68pF
:CHIP
R524
470
:CHIP
C520
330p
:CHIP
L506
180µH
:RA
L507
15µH
:RA
C521
56p
:CHIP
R522
560
:CHIP
R525
2.2k
:CHIP
R475
1.5k
:CHIP
L403
68µH
:ALI
R478
3.3k
:CHIP
SW5V
R487
10k
:CHIP
R481
470
:CHIP
L499
100µH
:ALI
R473
18k
:CHIP
Q404
2SD601A
AMP
C437
33p
:CHIP
Q409
2SD601A
BUFF
Q407
2SB709A
TEMP.CARR
Q408
2SB709A
ENV.DET
C443
22
25V
C435
0.01
F:CHIP
R485
3.3k
:CHIP
C439
0.01
F:CHIP
R479
2.2k
:CHIP
Q406
2SD601A
ENV.DET
R482
1.5k
:CHIP
R480
220
:CHIP
R474
22k
:CHIP
R476
510
:CHIP
R486
1k
:CHIP
C440
0.01
F:CHIP
Q410
2SD601A
TEMP.CARR
C445
0.01
F:CHIP
C441
2.2
C442
0.01
F:CHIP
Q507
2SD601A
BUFF
R530
470
:CHIP
Q509
2SD601A
BUFF
C524
0.01
F:CHIP
C525
47
10V
L509
100µH
:RA
SW5V
R528
10k
:CHIP
R529
1k
:CHIP
L508
10µH
:RA
C522
56p
:CHIP
C523
0.01
F:CHIP
R531
150
:CHIP
R532
1k
:CHIP
Q514
UN2113
JOG.SW
Q515
UN2213
NTSC.SW
Q506
UN2213
SW
Q508
UN2213
SW
R546
0
:CHIP
C526
47
10V
C527
0.01
F:CHIP
R539
4.7k
:CHIP
SW5V
CN502
19P
B TO B
1 SW 5V
2 REC
3 REC C
4 REC P
5 GND
6 JOG
7 PB C
8 SP
9 ENV.DET
10 NTSC/PAL
11 REC Y RF
12 HEAD CONT
13 GND
14 COMP SYNC
15 PB Y RF
16 C ROT
17 SW 9V
18 ENV.GAIN
19 RF SWP
TO MA2 BOARD
CN403
R533
10k
:CHIP
R535
1k
:CHIP
SW5V
5.2
Q512
2SD601A
BUFF
3.3
3.4
Q510
2SD601A
AMP
1.6
C528
0.01
F:CHIP
1.0
2.7
R534
5.6k
:CHIP
R536
750
:CHIP
C529
0.01
F:CHIP
R537
1.8k
:CHIP
R538
820
:CHIP
C531
0.01
F:CHIP
C532
47
10V
L510
100µH
:RA
Q511
UN2213
SW
C534
0.01
F:CHIP
C539
0.01
F:CHIP
CHECK CN
4 REC CUR
3 PB RF
2 RF SWP
1 GND
CN503
4P
WHT
:S-MICRO
RP3
(VCR. REC/PB AMP)
B-554714<AEP>-RP3

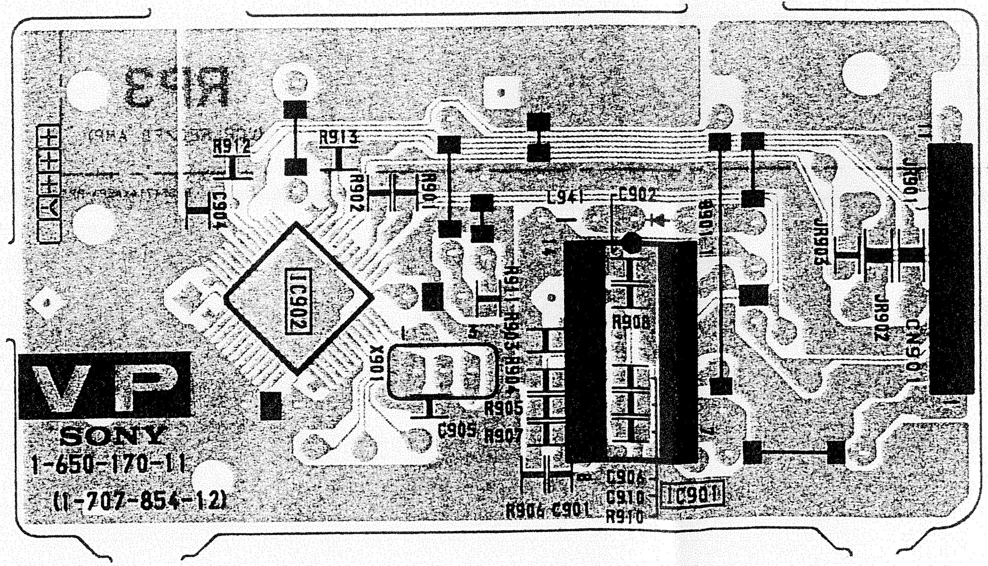
MF1 [FUNCTION SW]

VP [VIDEO PROGRAMING SYSTEM]

– MF1 Board –


S105
CH +
S104
VR +
R110
R109
S108
EJECT
D109
S112
CH –
S111
VR –
R114
R113
R115
IC101
R118
MF1
SONY
S107
RESET
S109
TU PR
R116
AUTO
PAL/MESECAM
NTSC
S113
S106
REPEAT
R111
REC
S103
R108
D117
TR ON/OFF
S102
R107
Q.TIME
S110
R112
D119
D118
D115
IN SEL
S101
L104
D110
C104
R106
C105
C103
C102
D114
D116
U102
1-650-175-12
(1-707-854-12)
AU GND
L IN
R IN
L2 CONT
KEY 1
KEY 2
EJECT
RESET
UNSW 5V
SIRCS
D GND

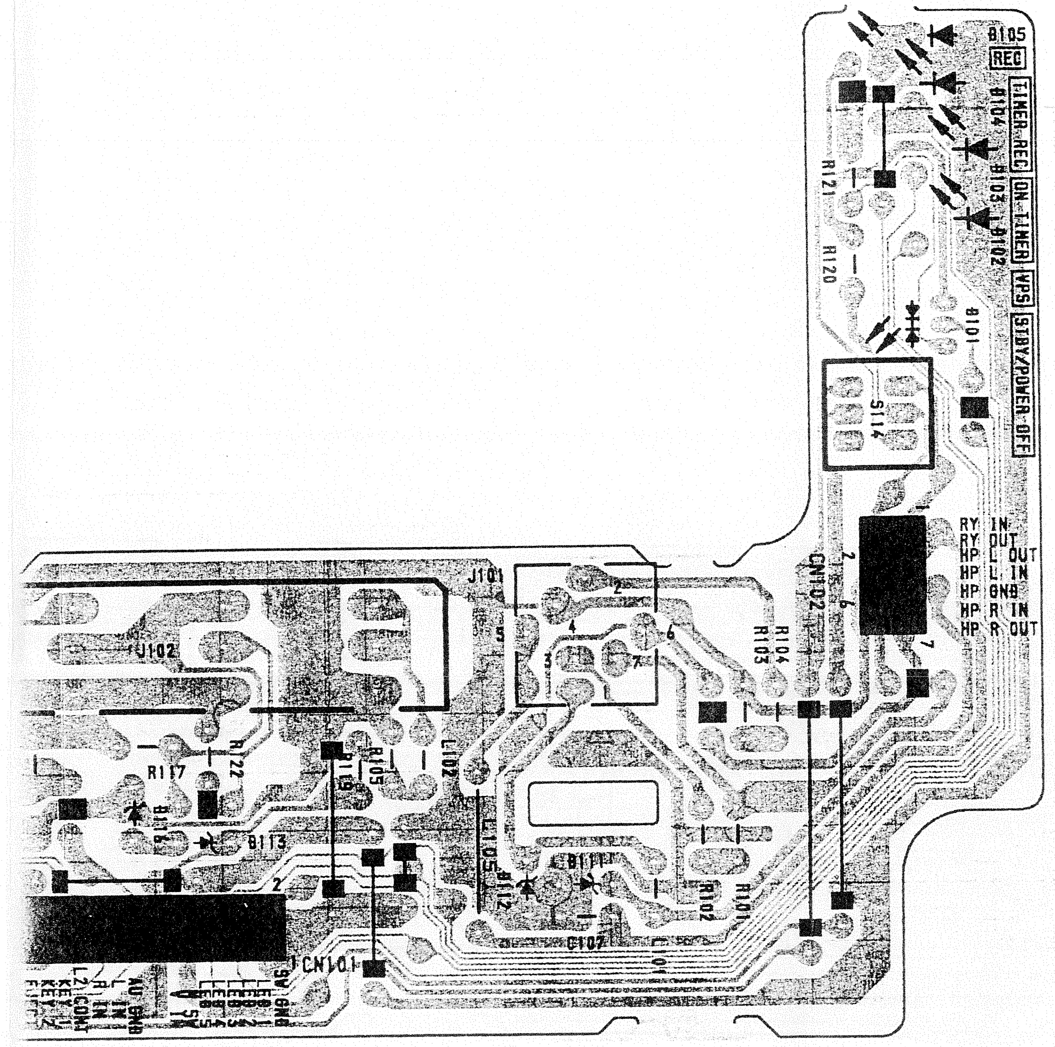
– VP Board –


RP3
R912
R913
C904
R902
R901
L941
C902
L950
JR903
JR901
IC902
X901
JR902
CN901
R908
C905
R907
R905
VP
SONY
1-650-170-11
(1-707-854-12)
R906
C901
C906
C910
R910
IC901

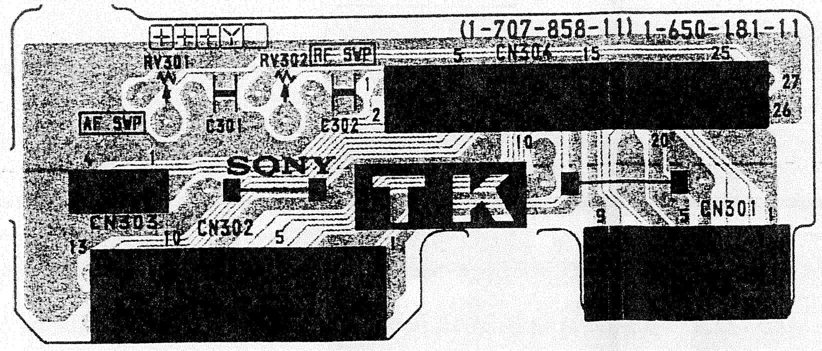
TK [MECHA DECK – MA PCB CONNECTION]

MF3 [DMS SW]

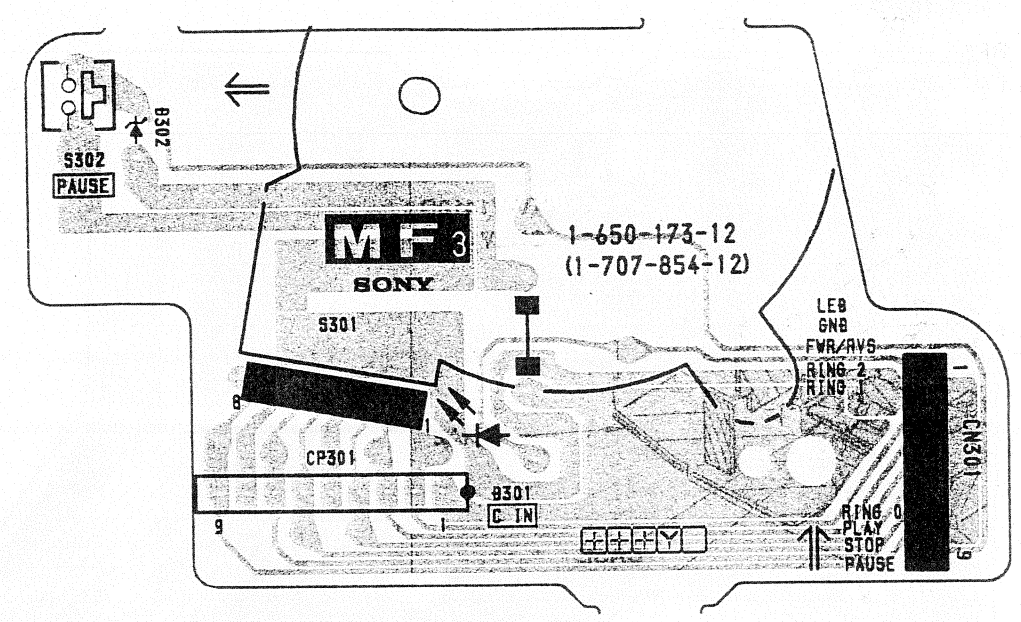
ZD [VCR, POWER RAGELATION]


8105
REC
8104
TIMER REC
8103
ON TIMER
8102
VPS
8101
STBY/POWER OFF
R121
R120
S114
RY IN
RY OUT
HP L OUT
HP L IN
HP GNB
HP R IN
HP R OUT
CN102
R104
R103
J101
U102
R117
R122
R116
R105
L102
8113
8111
8112
R102
R101
C107
CN101

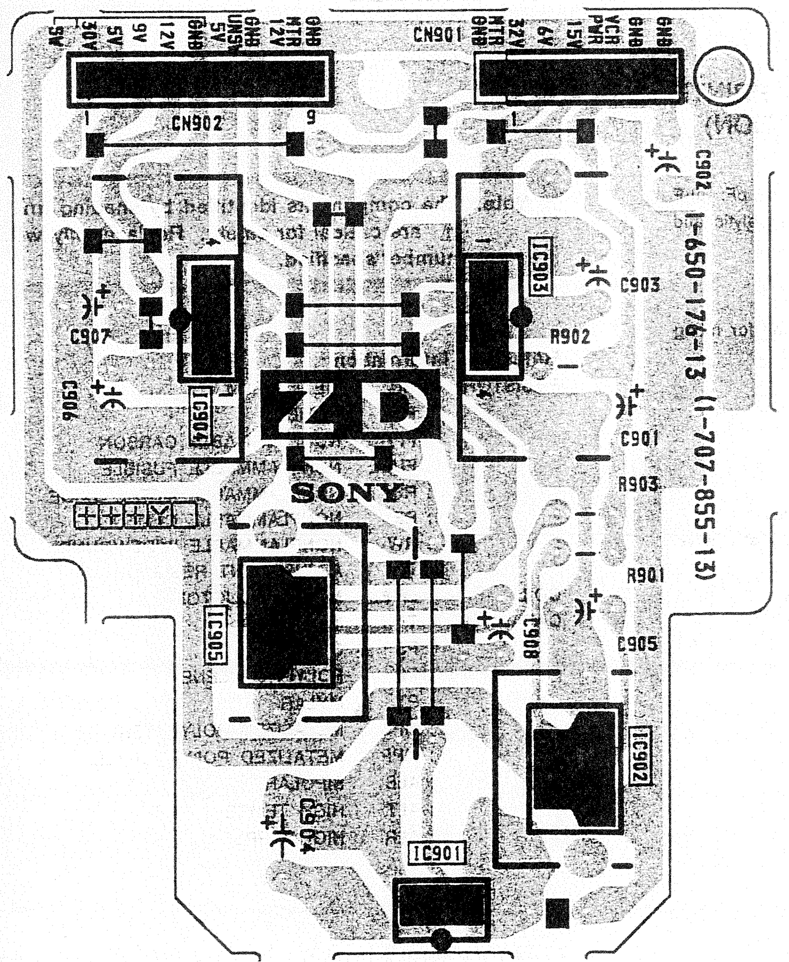
– TK Board –


(1-707-858-11) 1-650-181-11
RV301
RV302
RF SWP
AE SWP
C301
C302
CN304
SONY
TK
CN303
CN302
CN301

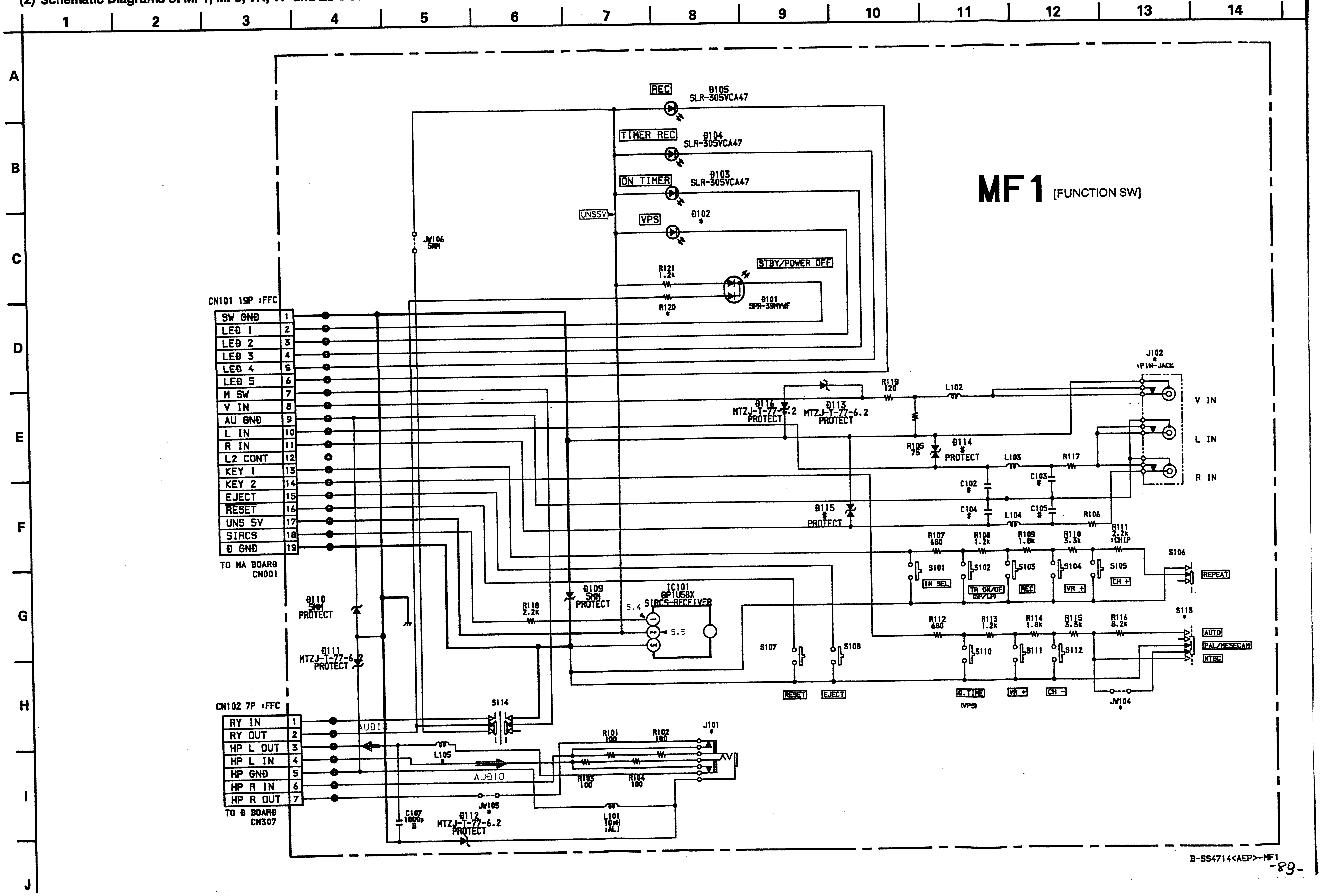
– MF3 Board –

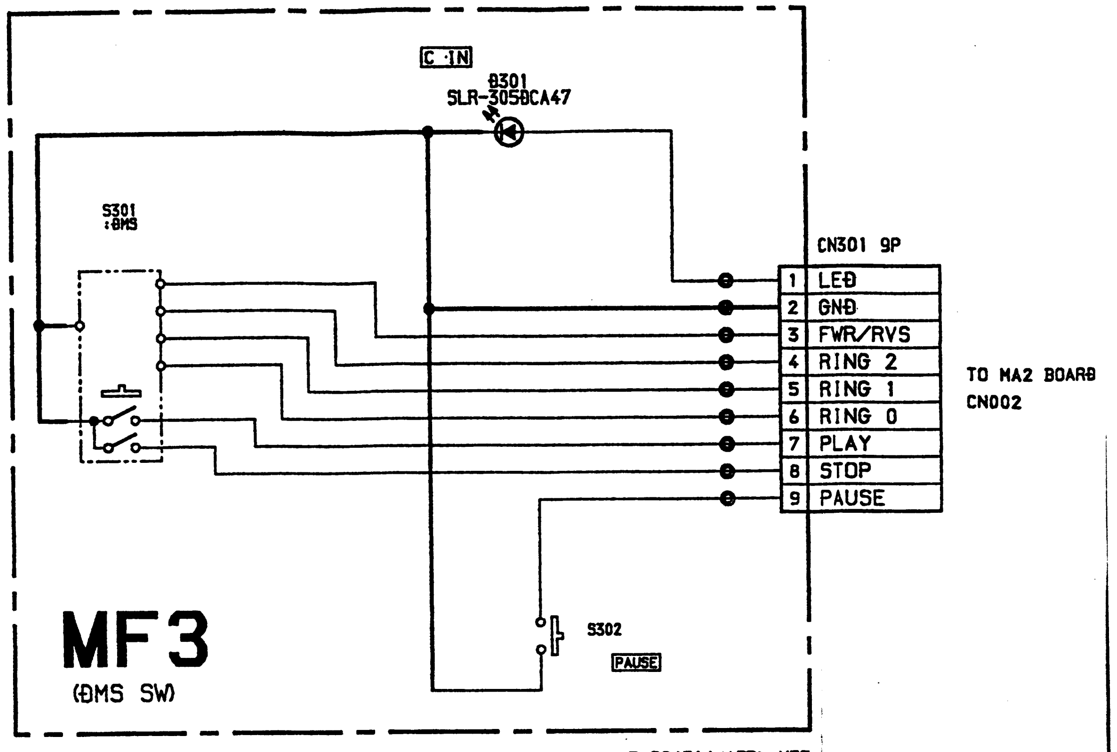

S302
PAUSE
8302
MF3
SONY
1-650-173-12
(1-707-854-12)
S301
LEB
GNB
FWR/RVS
RING 2
RING 1
CN301
CP301
8301
C IN
RING 0
PLAY
STOP
PAUSE

– ZD Board –

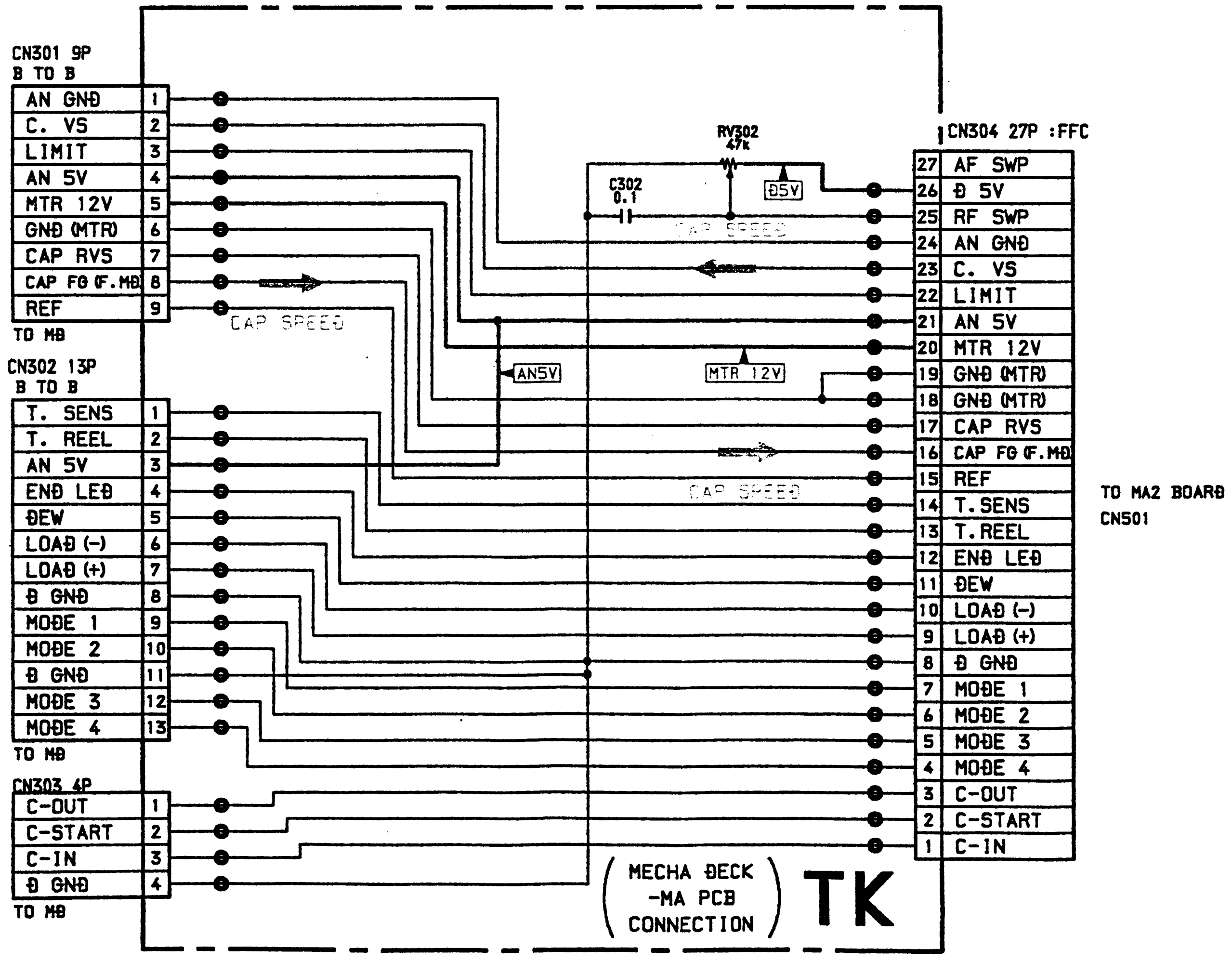

CN901
CN902
C902
IC903
C903
R902
C907
C906
IC904
ZD
SONY
C901
R903
1-650-176-13 (1-707-855-13)
R901
IC905
C908
C905
IC902
IC901

(2) Schematic Diagrams of MF1, MF3, TK, VP and ZD Boards

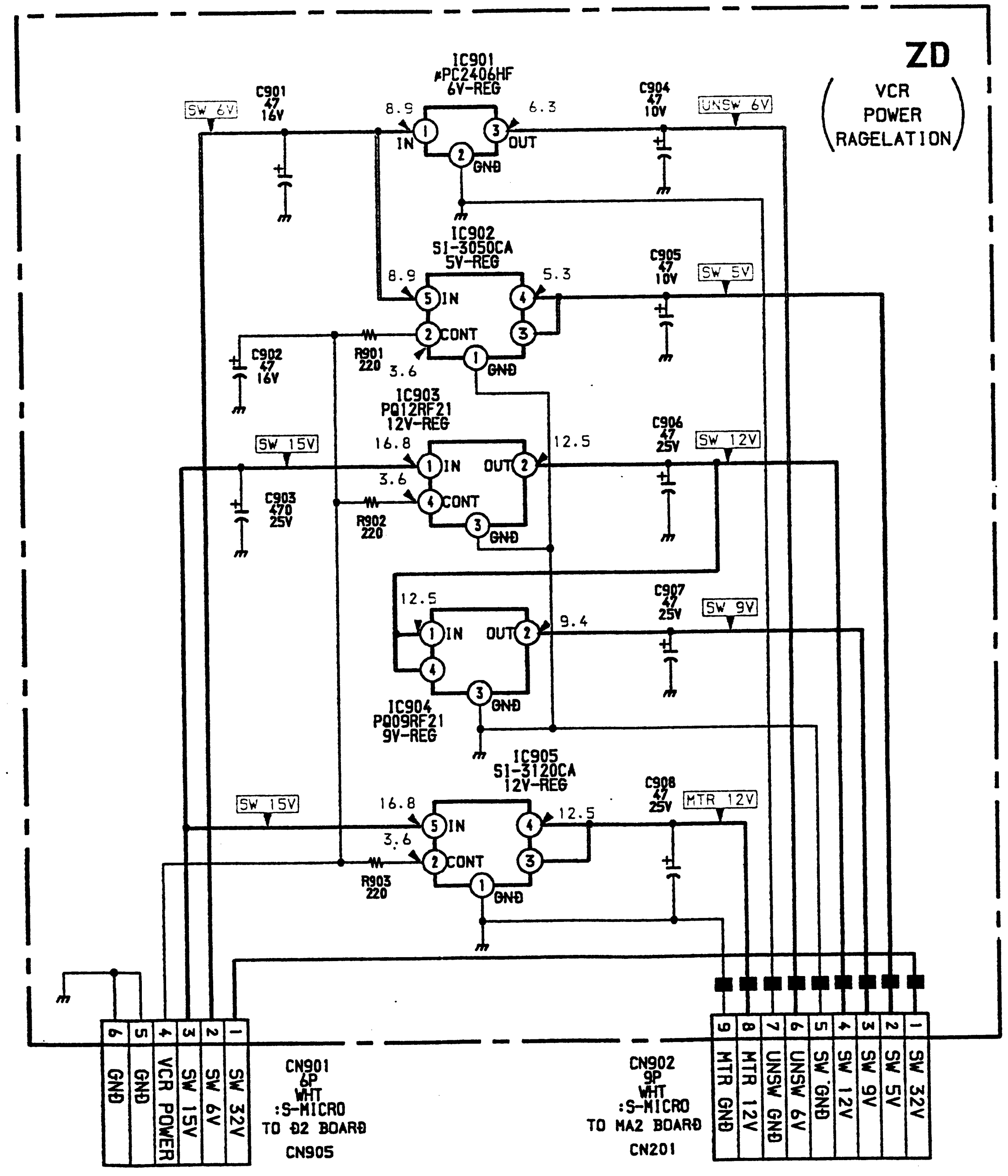

1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
MF1 [FUNCTION SW]
REC
D105 SLR-305VCA47
TIMER REC
D104 SLR-305VCA47
ON TIMER
D103 SLR-305VCA47
UNS5V
VPS
D102 *
JW106 5MM
R121 1.2k
STBY/POWER OFF
R120 *
D101 SPR-39MVWF
CN101 19P :FFC
SW GND 1
LED 1 2
LED 2 3
LED 3 4
LED 4 5
LED 5 6
M SW 7
V IN 8
AU GND 9
L IN 10
R IN 11
L2 CONT 12
KEY 1 13
KEY 2 14
EJECT 15
RESET 16
UNS 5V 17
SIRCS 18
D GND 19
TO MA BOARD CN001
J102 * :PIN-JACK
V IN
L IN
R IN
R119 120
L102
D116 MTZJ-T-77-6.2 PROTECT
D113 MTZJ-T-77-6.2 PROTECT
R105 75
D114 * PROTECT
L103
R117
C102 *
C103 *
C104 *
L104
C105 *
R106
D115 * PROTECT
R107 680
R108 1.2k
R109 1.8k
R110 3.3k
R111 2.2k :CHIP
S106
S101
S102
S103
S104
S105
IN SEL
TR ON/OF (SP/LP)
REC
VR +
CH +
REPEAT
D110 5MM PROTECT
D109 5MM PROTECT
R118 2.2k
IC101 GP1U58X SIRCS-RECEIVER
5.4
5.5
D111 MTZJ-T-77-6.2 PROTECT
S107
S108
RESET
EJECT
R112 680
R113 1.2k
R114 1.8k
R115 3.3k
R116 8.2k
S113 *
AUTO
PAL/MESECAM
NTSC
S110
S111
S112
G.TIME (VPS)
VR +
CH -
JW104 *
CN102 7P :FFC
RY IN 1
RY OUT 2
HP L OUT 3
HP L IN 4
HP GND 5
HP R IN 6
HP R OUT 7
TO D BOARD CN307
S114
AUDIO
L105 *
AUDIO
R101 100
R102 100
J101 *
R103 100
R104 100
JW105 *
C107 1000p B
D112 * MTZJ-T-77-6.2 PROTECT
L101 10μH :ALT


C-IN
D301
SLR-305DCA47
S301
:DMS
CN301 9P
1 LED
2 GND
3 FWR/RVS
4 RING 2
5 RING 1
6 RING 0
7 PLAY
8 STOP
9 PAUSE
TO MA2 BOARD
CN002
S302
PAUSE
MF3
(DMS SW)

B-SS4714<AEP>-MF3

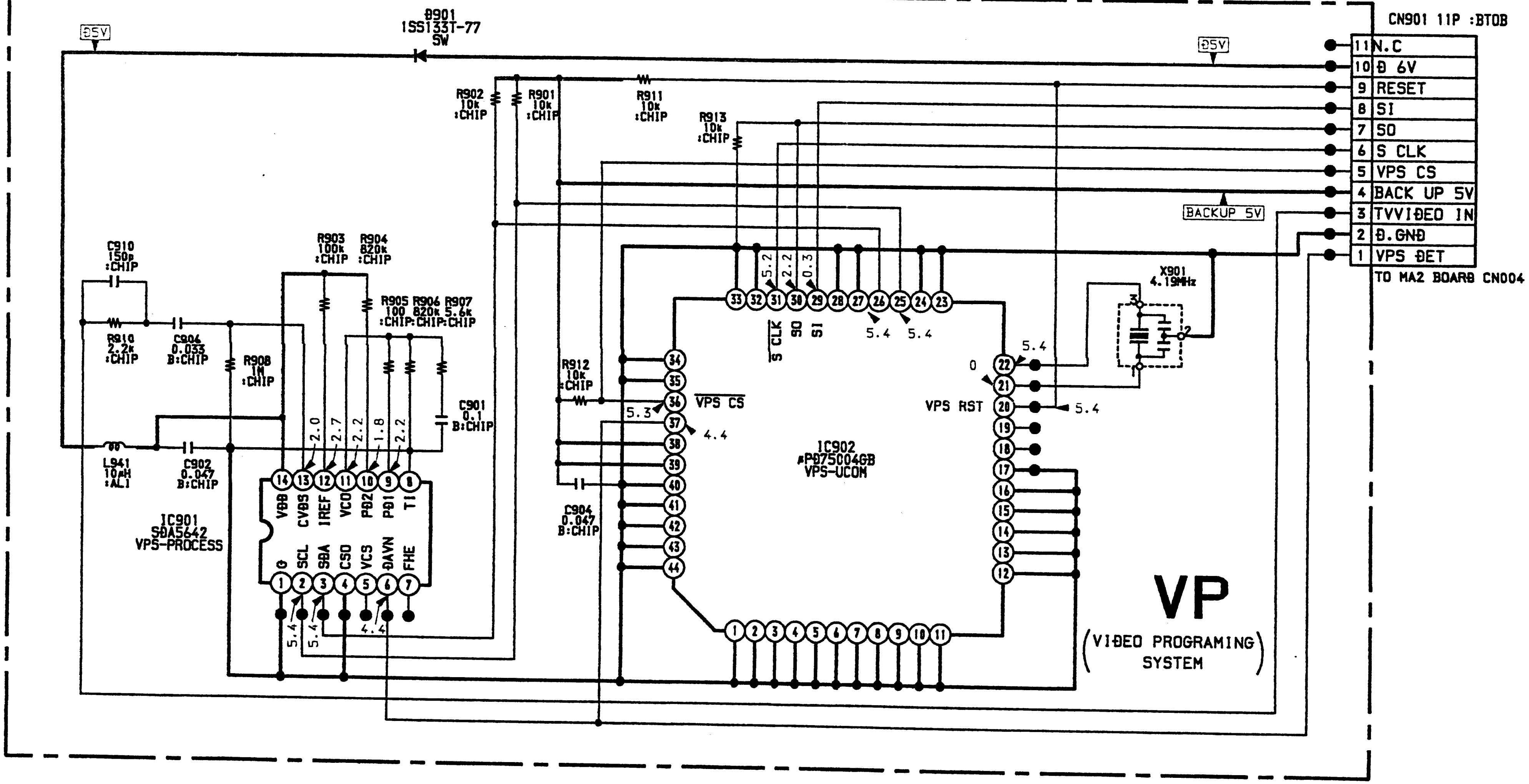

CN301 9P
B TO B
1 AN GND
2 C. VS
3 LIMIT
4 AN 5V
5 MTR 12V
6 GND (MTR)
7 CAP RVS
8 CAP FG (F.MD)
9 REF
TO MB
CN302 13P
B TO B
1 T. SENS
2 T. REEL
3 AN 5V
4 END LED
5 DEW
6 LOAD (-)
7 LOAD (+)
8 D GND
9 MODE 1
10 MODE 2
11 D GND
12 MODE 3
13 MODE 4
TO MB
CN303 4P
1 C-OUT
2 C-START
3 C-IN
4 D GND
TO MB
C302
0.1
RV302
47k
D5V
CAP SPEED
AN5V
MTR 12V
CN304 27P :FFC
27 AF SWP
26 D 5V
25 RF SWP
24 AN GND
23 C. VS
22 LIMIT
21 AN 5V
20 MTR 12V
19 GND (MTR)
18 GND (MTR)
17 CAP RVS
16 CAP FG (F.MD)
15 REF
14 T.SENS
13 T.REEL
12 END LED
11 DEW
10 LOAD (-)
9 LOAD (+)
8 D GND
7 MODE 1
6 MODE 2
5 MODE 3
4 MODE 4
3 C-OUT
2 C-START
1 C-IN
TO MA2 BOARD
CN501
MECHA DECK
-MA PCB
CONNECTION
TK

B-SS4714<AEP>-TK.

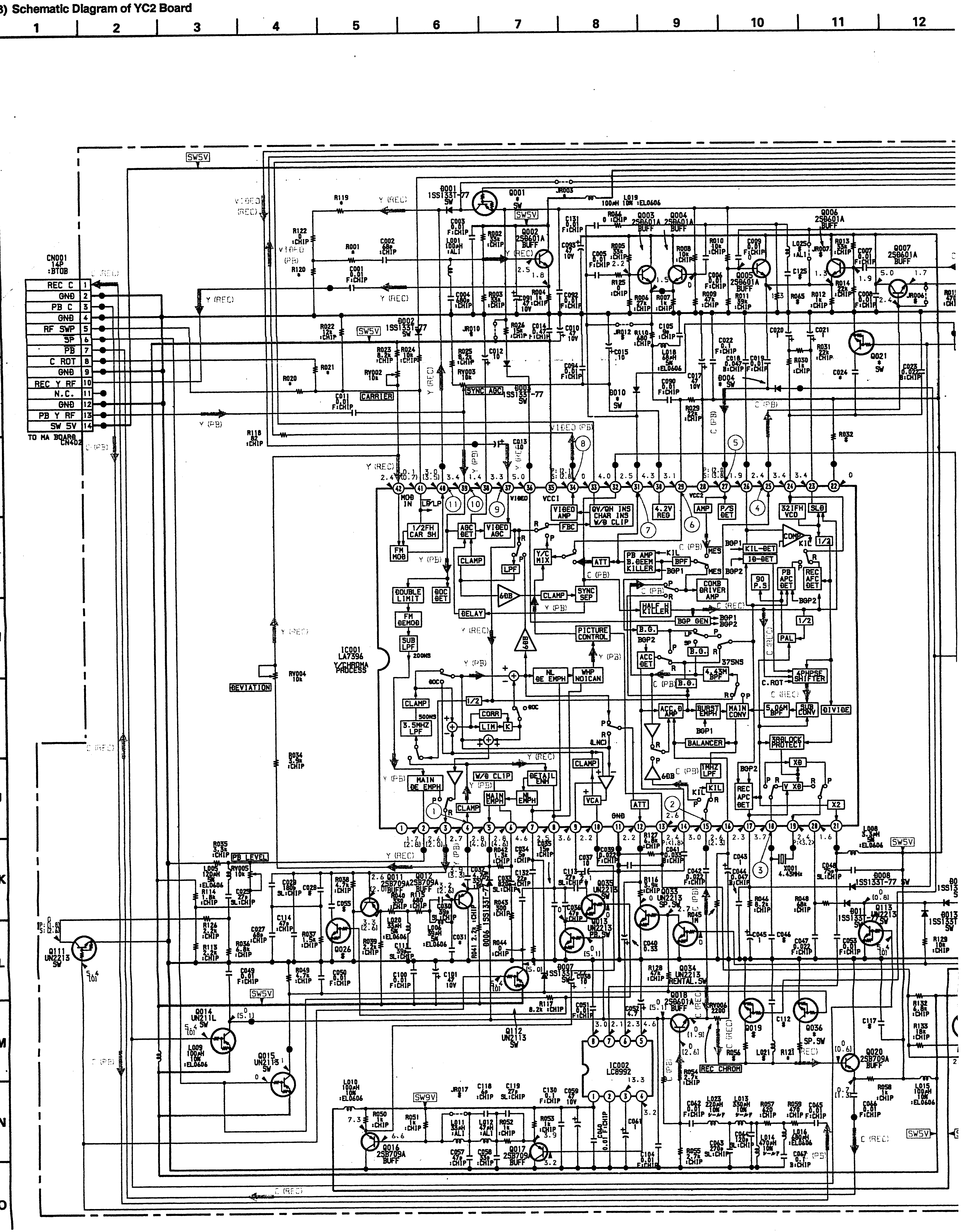

ZD
VCR
POWER
RAGELATION
IC901
μPC2406HF
6V-REG
IN
OUT
GND
8.9
6.3
SW 6V
C901
47
16V
C904
47
10V
UNSW 6V
IC902
SI-3050CA
5V-REG
8.9
5.3
IN
CONT
GND
C902
47
16V
R901
220
3.6
C905
47
10V
SW 5V
IC903
PQ12RF21
12V-REG
16.8
3.6
IN
OUT
CONT
GND
12.5
SW 15V
C903
470
25V
R902
220
C906
47
25V
SW 12V
12.5
9.4
IN
OUT
GND
IC904
PQ09RF21
9V-REG
C907
47
25V
SW 9V
IC905
SI-3120CA
12V-REG
16.8
3.6
IN
CONT
GND
12.5
SW 15V
R903
220
C908
47
25V
MTR 12V
6 GND
5 GND
4 VCR POWER
3 SW 15V
2 SW 6V
1 SW 32V
CN901
6P
WHT
:S-MICRO
TO D2 BOARD
CN905
CN902
9P
WHT
:S-MICRO
TO MA2 BOARD
CN201
9 MTR GND
8 MTR 12V
7 UNSW GND
6 UNSW 6V
5 SW GND
4 SW 12V
3 SW 9V
2 SW 5V
1 SW 32V

B-SS4714<AEP>-ZD.

(KV-V1410D ONLY)


CN901 11P :BTOB
11 N.C
10 D 6V
9 RESET
8 SI
7 SO
6 S CLK
5 VPS CS
4 BACK UP 5V
3 TVVIDEO IN
2 D.GND
1 VPS DET
TO MA2 BOARD CN004
D5V
BACKUP 5V
D901 1SS133T-77 SW
R902 10k :CHIP
R901 10k :CHIP
R911 10k :CHIP
R913 10k :CHIP
R912 10k :CHIP
C904 0.047 B:CHIP
X901 4.19MHz
IC902 µPD75004GB VPS-UCOM
VPS RST
VPS CS
S CLK
SO
SI
IC901 SDA5642 VPS-PROCESS
VBB
CVBS
IREF
VCO
PD2
PD1
TI
G
SCL
SDA
CSO
VCS
DAVN
FHE
R903 100k :CHIP
R904 820k :CHIP
R905 R906 R907 100 820k 5.6k :CHIP:CHIP:CHIP
C901 0.1 B:CHIP
R908 1M :CHIP
C910 150p :CHIP
R910 2.2k :CHIP
C904 0.033 B:CHIP
C902 0.047 B:CHIP
L941 10µH :AL1
5.4
5.2
2.2
0.3
0
5.3
4.4
2.0
2.7
1.8
VP
(VIDEO PROGRAMING SYSTEM)

3) Schematic Diagram of YC2 Board


1
2
3
4
5
6
7
8
9
10
11
12
CN001 14P :BTOB
REC C
GND
PB C
GND
RF SWP
SP
PB
C ROT
GND
REC Y RF
N.C.
GND
PB Y RF
SW 5V
TO MA BOARD CN402
SW5V
SW9V
Y (REC)
Y (PB)
C (REC)
C (PB)
VIDEO (REC)
VIDEO (PB)
CARRIER
SYNC AGC
DEVIATION
PB LEVEL
REC CHROM
IC001 LA7396 Y/CHROMA PROCESS
IC002 LC8992
FM MOD
1/2FH CAR SH
AGC DET
VIDEO AGC
CLAMP
LPF
Y/C MIX
VIDEO AMP
FBC
QV/QH INS CHAR INS W/D CLIP
4.2V REG
AMP
P/S DET
321FH VCO
SLD
COMP
KIL-DET
ID-DET
PB AMP B.DEEM KILLER
BPF
COMB DRIVER AMP
90 P.S
PB APC DET
REC AFC DET
DOUBLE LIMIT
DOC DET
FM DEMOD
SUB LPF
DELAY
6DB
SYNC SEP
HALF H KILLER
BGP GEN
PICTURE CONTROL
B.G.
ACC DET
4.43M BPF
4PHPSE SHIFTER
NL DE EMPH
WHP NOICAN
3.5MHZ LPF
CORR
LIM
1/2
ACC AMP
BURST EMPH
MAIN CONV
5.06M BPF
SUB CONV
DIVIDE
BALANCER
3BBLOCK PROTECT
MAIN DE EMPH
W/D CLIP
DETAIL ENH
MAIN EMPH
NL EMPH
VCA
ATT
1MHZ LPF
KIL
REC APC DET
X8
V X8
X2
PAL
VCC1
VCC2
GND
X001 4.43MHz
D001 1SS133T-77 SW
Q001 SW
Q002 2SB601A BUFF
Q003 2SB601A BUFF
Q004 2SB601A BUFF
Q005 2SB601A BUFF
Q006 2SB601A BUFF
Q007 2SB601A BUFF
D002 1SS133T-77 SW
D003 1SS133T-77 SW
D010 SW
D004 SW
Q021 SW
Q011 2SB709A BUFF
Q012 2SB709A BUFF
D006 1SS133T-77
D007 1SS133T-77 SW
Q026
Q033 UN2213 SP.SW
Q035 UN2213 SW
Q013 UN2213 PB.SW
Q034 UN2213 RENTAL.SW
Q018 2SB601A BUFF
Q019
Q036 SP.SW
Q020 2SB709A BUFF
D008 1SS133T-77 SW
D001 1SS133T-77 SW
Q113 UN2213 SW
Q111 UN2213 SW
Q112 UN2113 SW
Q014 UN2111 SW
Q015 UN2113 SW
Q016 2SB709A BUFF
Q017 2SB709A BUFF
RV002 10k
RV003 10k
RV004 10k
RV005 10k
RV006 2200
L019 100uH 10K :EL0606
L001 100uH :ALI
L018 68uH 5K :EL0606
L008 3.3uH 5K :EL0606
L005 120uH 5K :EL0606
L009 100uH 10K :EL0606
L010 100uH 10K :EL0606
L015 100uH 10K :EL0606

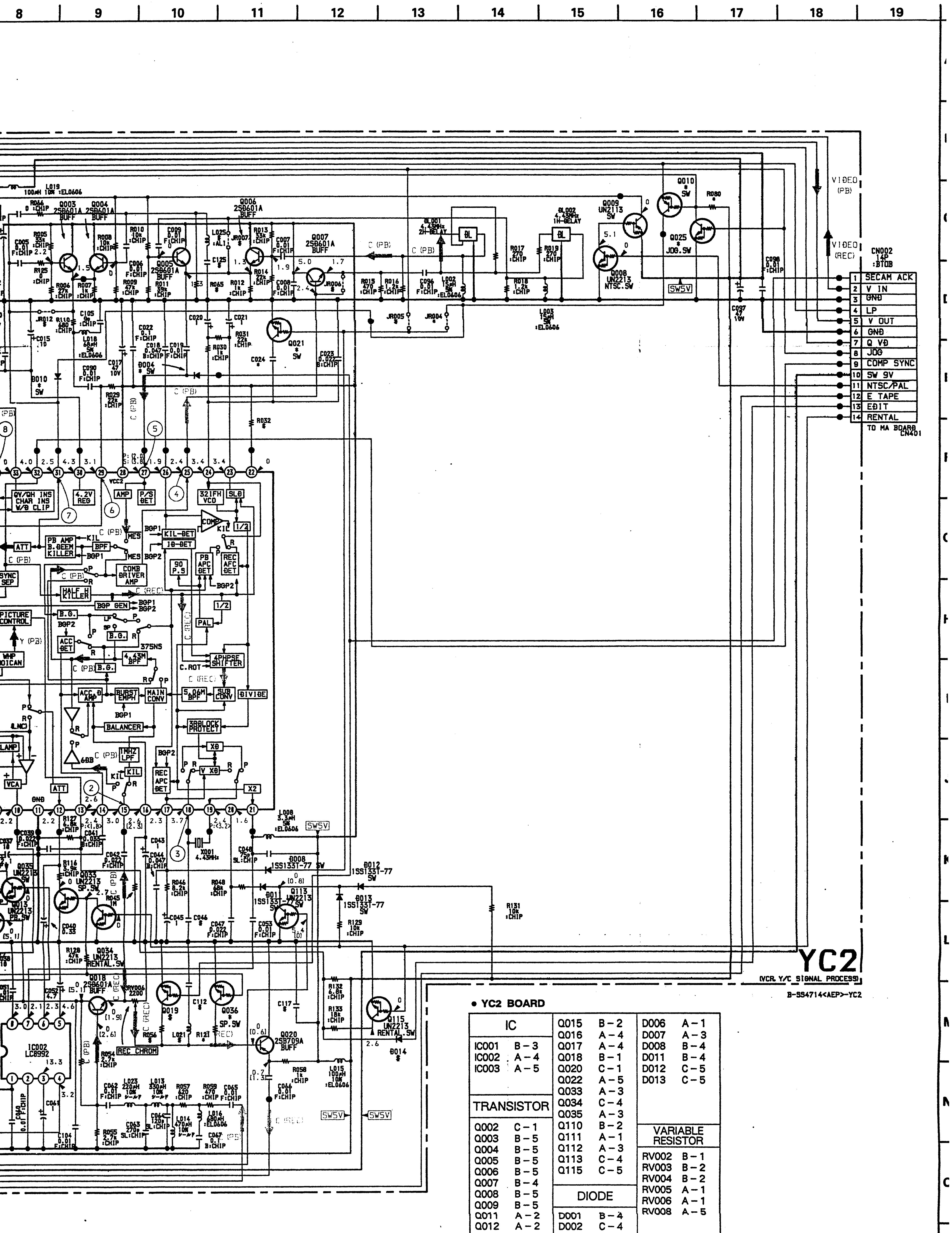
Schematic diagrams

MF1 MF3

← TK VP ZD boards

Schematic diagram

YC2 board →



8
9
10
11
12
13
14
15
16
17
18
19
Q003 2SB601A BUFF
Q004 2SB601A BUFF
Q005 2SB601A BUFF
Q006 2SB601A BUFF
Q007 2SB601A BUFF
Q008 UN2213 NTSC.SW
Q009 UN2113 SW
Q010 * SW
Q025 * JOG.SW
Q021 * SW
BL001 4.43MHz 2H-DELAY
BL002 4.43MHz 1H-DELAY
L019 100μH 10% :EL0606
C (PB)
C (REC)
SW5V
VIDEO (PB)
VIDEO (REC)
CN002 14P :BTOB
1 SECAM ACK
2 V IN
3 GND
4 LP
5 V OUT
6 GND
7 Q VD
8 JOG
9 COMP SYNC
10 SW 9V
11 NTSC/PAL
12 E TAPE
13 EDIT
14 RENTAL
TO MA BOARD CN401
QV/QH INS CHAR INS W/B CLIP
4.2V REG
AMP
P/S DET
321FH VCO
SLD
COMP
KIL
1/2
KIL-DET
ID-DET
BGP1
BGP2
MES
PB AMP B.DEEM KILLER
BPF
ATT
SYNC SEP
COMB DRIVER AMP
HALF H KILLER
BGP GEN
90 P.S
PB APC DET
REC AFC DET
PAL
PICTURE CONTROL
B.G.
ACC DET
4.43M BPF
375NS
4PHPSE SHIFTER
C.ROT
WHP DICAN
ACC.D AMP
BURST EMPH
MAIN CONV
5.06M BPF
SUB CONV
DIVIDE
BALANCER
3BBLOCK PROTECT
1MHZ LPF
6DB
CLAMP
VCA
REC APC DET
X8
V X8
X2
GND
X001 4.43MHz
D008 1SS133T-77 SW
D011 1SS133T-77 SW
D012 1SS133T-77 SW
D013 1SS133T-77 SW
Q113 UN2213 SW
Q033 UN2213 SP.SW
Q035 UN2213 SW
Q013 UN2213 PB.SW
Q034 UN2213 RENTAL.SW
Q018 2SB601A BUFF
Q019 *
Q036 * SP.SW
Q020 2SB709A BUFF
Q115 UN2213 RENTAL.SW
D014 *
IC002 LC8992
REC CHROM
RV006 2200
YC2
(VCR Y/C SIGNAL PROCESS)
B-SS4714<AEP>-YC2

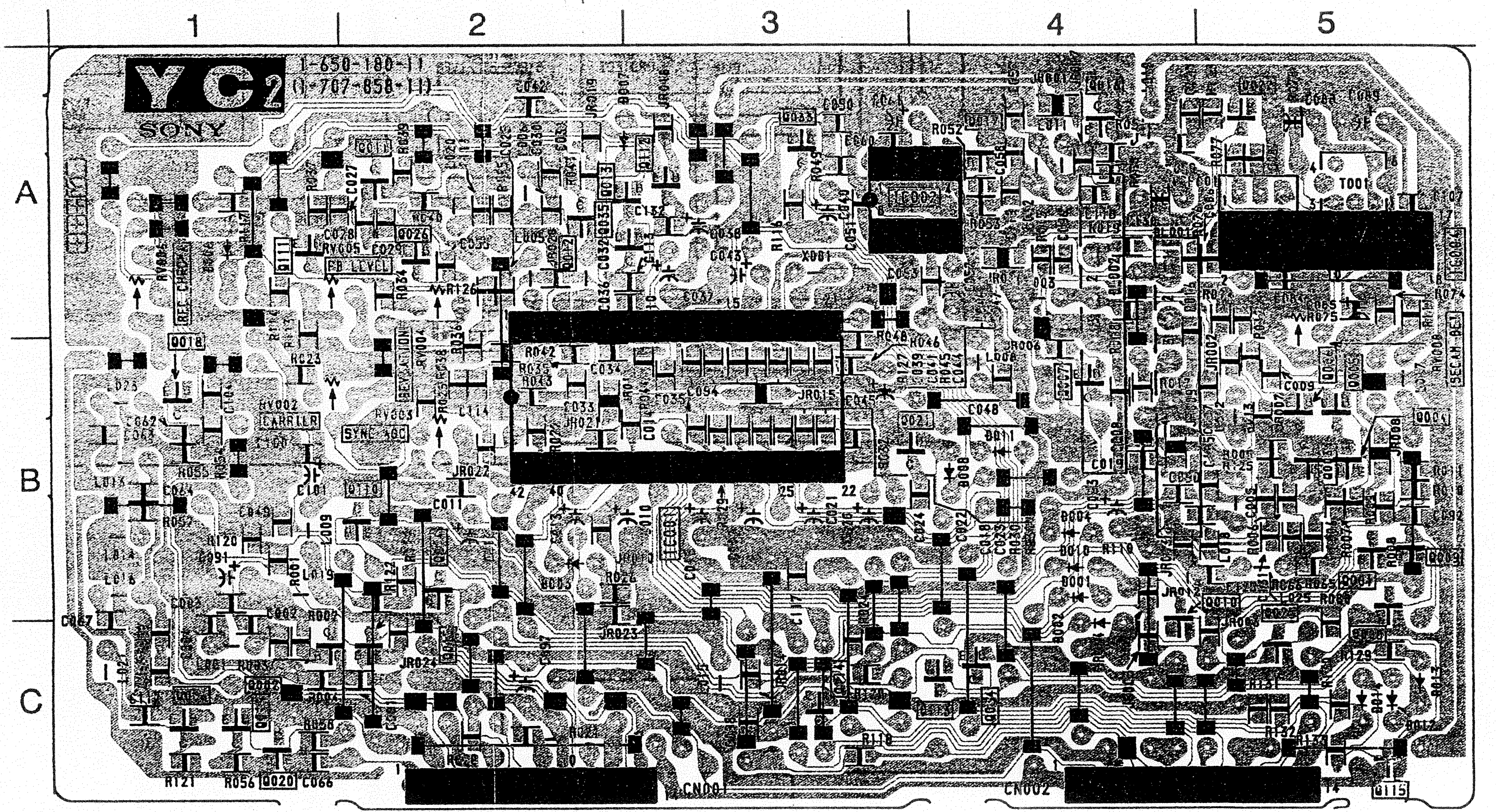
• **YC2 BOARD**

IC	
IC001	B-3
IC002	A-4
IC003	A-5

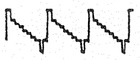
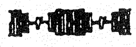
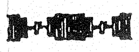
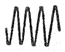
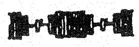
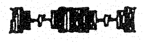
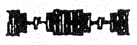
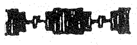
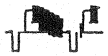
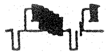
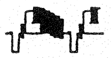
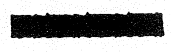
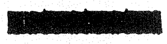
TRANSISTOR	
Q002	C-1
Q003	B-5
Q004	B-5
Q005	B-5
Q006	B-5
Q007	B-4
Q008	B-5
Q009	B-5
Q011	A-2
Q012	A-2
Q013	A-3
Q014	B-2
Q015	B-2
Q016	A-4
Q017	A-4
Q018	B-1
Q020	C-1
Q022	A-5
Q033	A-3
Q034	C-4
Q035	A-3
Q110	B-2
Q111	A-1
Q112	A-3
Q113	C-4
Q115	C-5

DIODE	
D001	B-4
D002	C-4
D003	B-2
D004	B-4
D006	A-1
D007	A-3
D008	B-4
D011	B-4
D012	C-5
D013	C-5

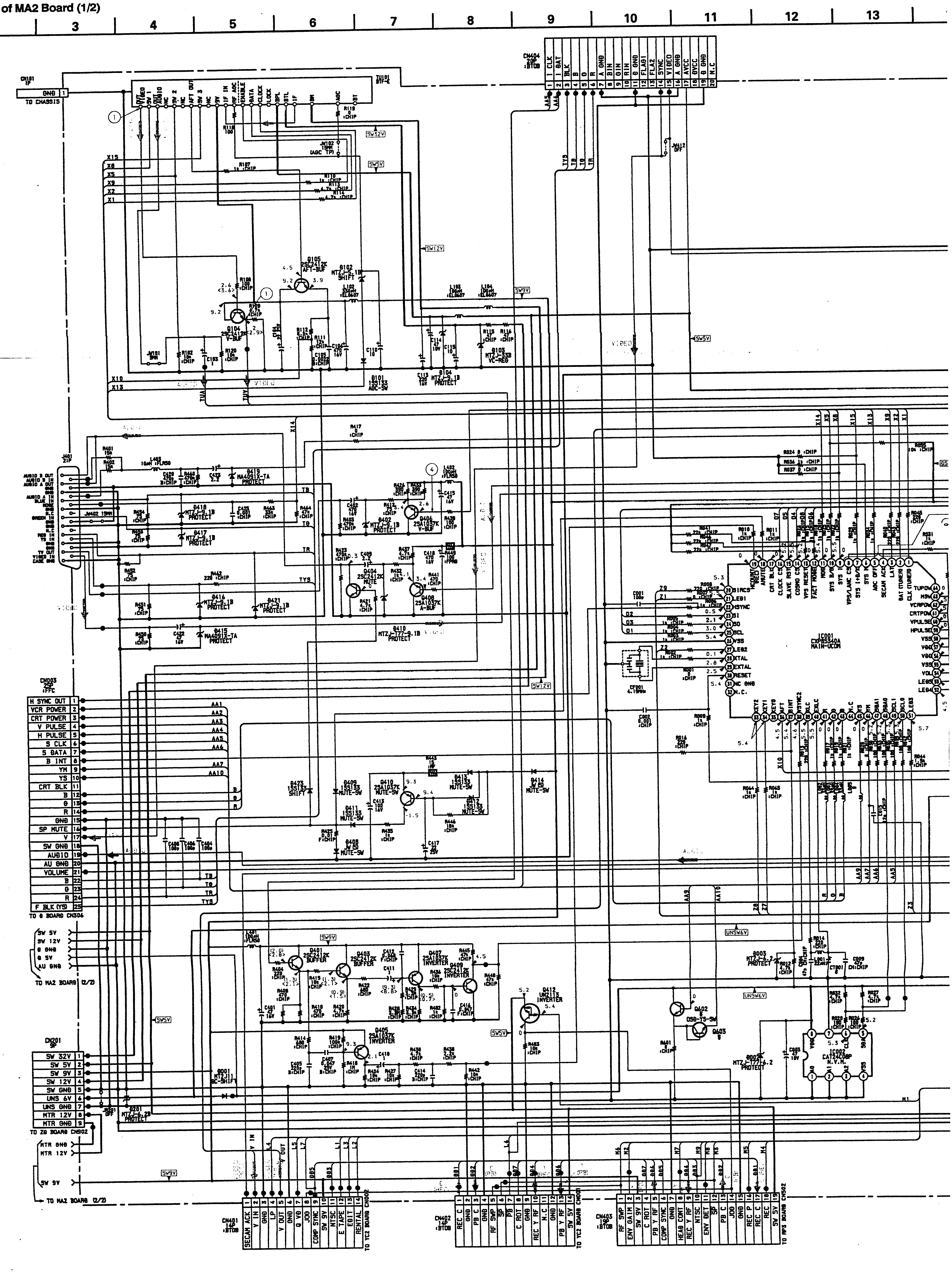
VARIABLE RESISTOR	
RV002	B-1
RV003	B-2
RV004	B-2
RV005	A-1
RV006	A-1
RV008	A-5


1
2
3
4
5
A
B
C
YC2
SONY
1-650-180-11
(1-707-858-11)
RF CHARA
PB LEVEL
CARRIER
SYNC AGC
SECAM DET
T001
IC002
IC001
CN001
CN002
X001
RV002
RV003
RV004
RV005
RV006
RV008
Q118
Q119
Q111
Q120
Q115
R121
R056
Q020
C066
C067

• YC2 BOARD WAVEFORMS

① PB  0.5 Vp-p (H)	② REC  0.4 Vp-p (H)	② PB  0.2 Vp-p (H)	③  0.6 Vp-p (4.43MHz)	④ PB  1.2 Vp-p (H)
⑤ PB  0.2 Vp-p (H)	⑥ PB  0.4 Vp-p (H)	⑦ PB  0.6 Vp-p (H)	⑧ REC  2.5 Vp-p (H)	⑧ PB  Vp-p (H)
⑨ REC  1.2 Vp-p (H)	⑩ PB  0.3 Vp-p (H)	⑪ REC  1.0 Vp-p (H)		

of MA2 Board (1/2)



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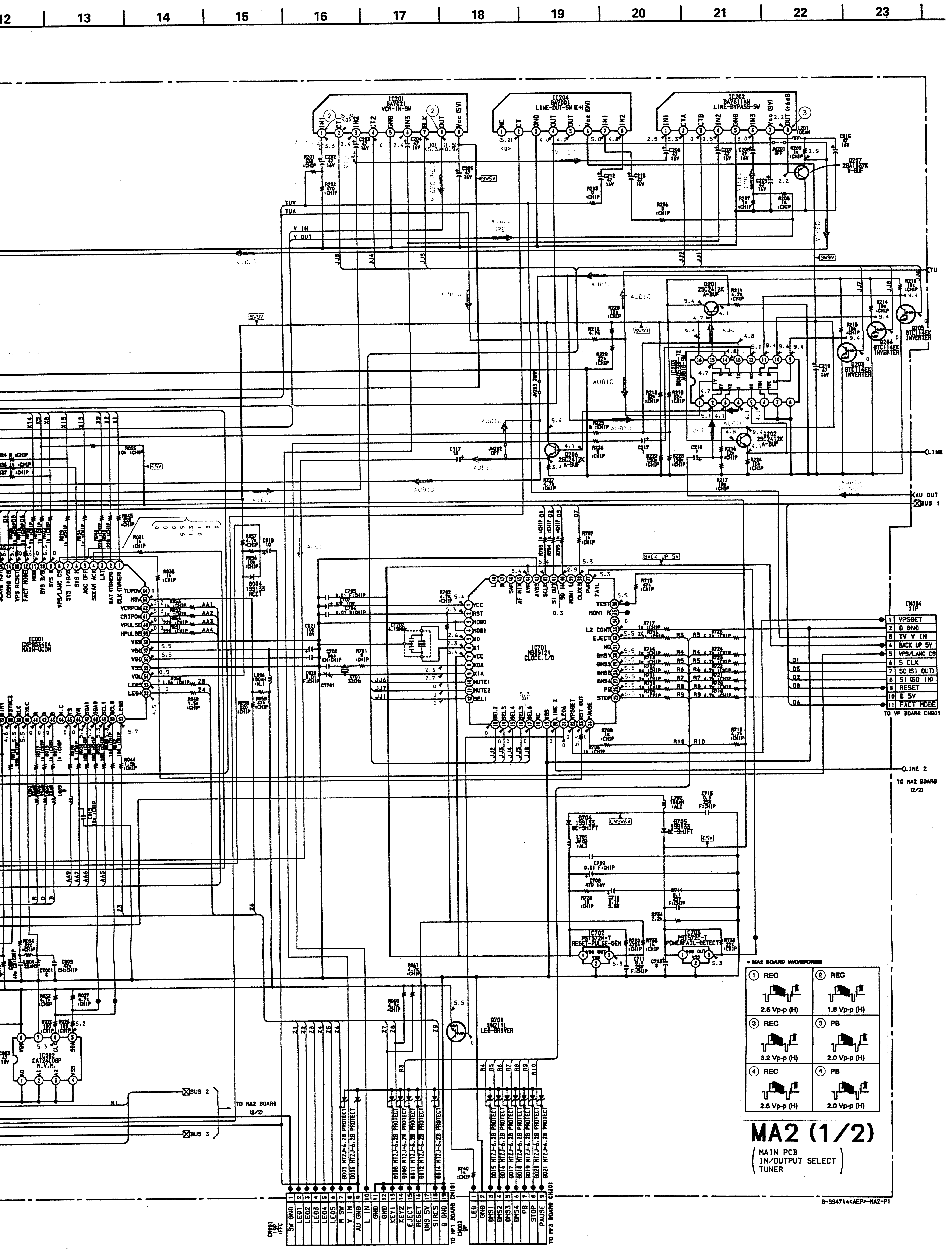
13
CN101 1P
GND
TO CHASSIS
TU101 BTF-E
CN404 20P :BTOB
1 CLK
2 DATA
3 BLK
4 B
5 G
6 R
7 A GND
8 BIN
9 GIN
10 D GND
11 RIN
12 FLAG1
13 FLAG2
14 SYNC
15 VIDEO
16 A GND
17 AVCC
18 DVCC
19 D GND
20 N.C
Q105 2SC2412K AFT-BUF
D102 MTZJ-5.1B SHIFT
Q104 2SC2412K V-BUF
D101 1SS133 AGC-SW
D104 MTZJ-9.1B PROTECT
D103 MTZJ-33B VC-REG
J401 21P
Q402 MTZJ-9.1B PROTECT
Q406 2SA1037K V-BUF
Q404 2SC2412K MUTE
Q408 2SA1037K A-BUF
D419 MA4091X-TA PROTECT
D418 MTZJ-9.1B PROTECT
D417 MTZJ-9.1B PROTECT
D416 MTZJ-9.1B PROTECT
D421 MTZJ-9.1B PROTECT
D415 MA4091X-TA PROTECT
D410 MTZJ-T77-9.1B PROTECT
IC001 CXP85340A MAIN-UCOM
CF001 4.19MHz
CN003 25P :FFC
H SYNC OUT
VCR POWER
CRT POWER
V PULSE
H PULSE
S CLK
S DATA
B INT
YM
YS
CRT BLK
B
G
R
GND
SP MUTE
V
SW GND
AUDIO
AU GND
VOLUME
B
G
R
F BLK (YS)
TO B BOARD CN306
Q410 2SA1037K MUTE-SW
D409 1SS133 MUTE-SW
D411 1SS133 MUTE-SW
D413 1SS133 MUTE-SW
D412 1SS133 MUTE-SW
D408 MUTE-SW
D414 MUTE-SW
D423 1SS133 SHIFT
SW 5V
SW 12V
D GND
D 5V
AU GND
TO MA2 BOARD (2/2)
Q401 2SC2412K BUFFER
Q403 2SC2412K BUFFER
Q407 2SA1037K INVERTER
Q409 2SC2412K INVERTER
Q405 2SA1037K INVERTER
Q412 UN2113 INVERTER
Q402 DSB-Y5-SW
Q403
D003 MTZJ-6.2 PROTECT
D002 MTZJ-T77-6.2 PROTECT
IC002 CAT24C08P N.V.M.
CN201 9P
SW 32V
SW 5V
SW 9V
SW 12V
SW GND
UNS 6V
UNS GND
MTR 12V
MTR GND
TO Z0 BOARD CN902
D001 MTZJ11 BC-SHIFT
D201 MTZJ-6.2B PROTECT
MTR GND
MTR 12V
SW 9V
TO MA2 BOARD (2/2)
CN401 14P :BTOB
SECAM ACK
V IN
GND
LP
V OUT
GND
Q VD
JOG
COMP SYNC
SW 9V
NTSC
E TAPE
EDIT
RENTAL
TO YC2 BOARD CN002
CN402 14P :BTOB
REC C
GND
PB C
GND
RF SWP
PB
C ROT
GND
REC Y RF
N.C
GND
PB Y RF
SW 5V
TO YC2 BOARD CN001
CN403 19P :BTOB
RF SWP
ENV GAIN
SW 9V
C ROT
PB Y RF
COMP SYNC
GND
HEAD CONT
REC Y RF
NTSC
ENV DET
SP
PB C
JOG
REC P
REC C
GND
SW 5V
TO RP3 BOARD CN502
SW32V
SW5V
SW12V
SW9V
UNSW6V


12
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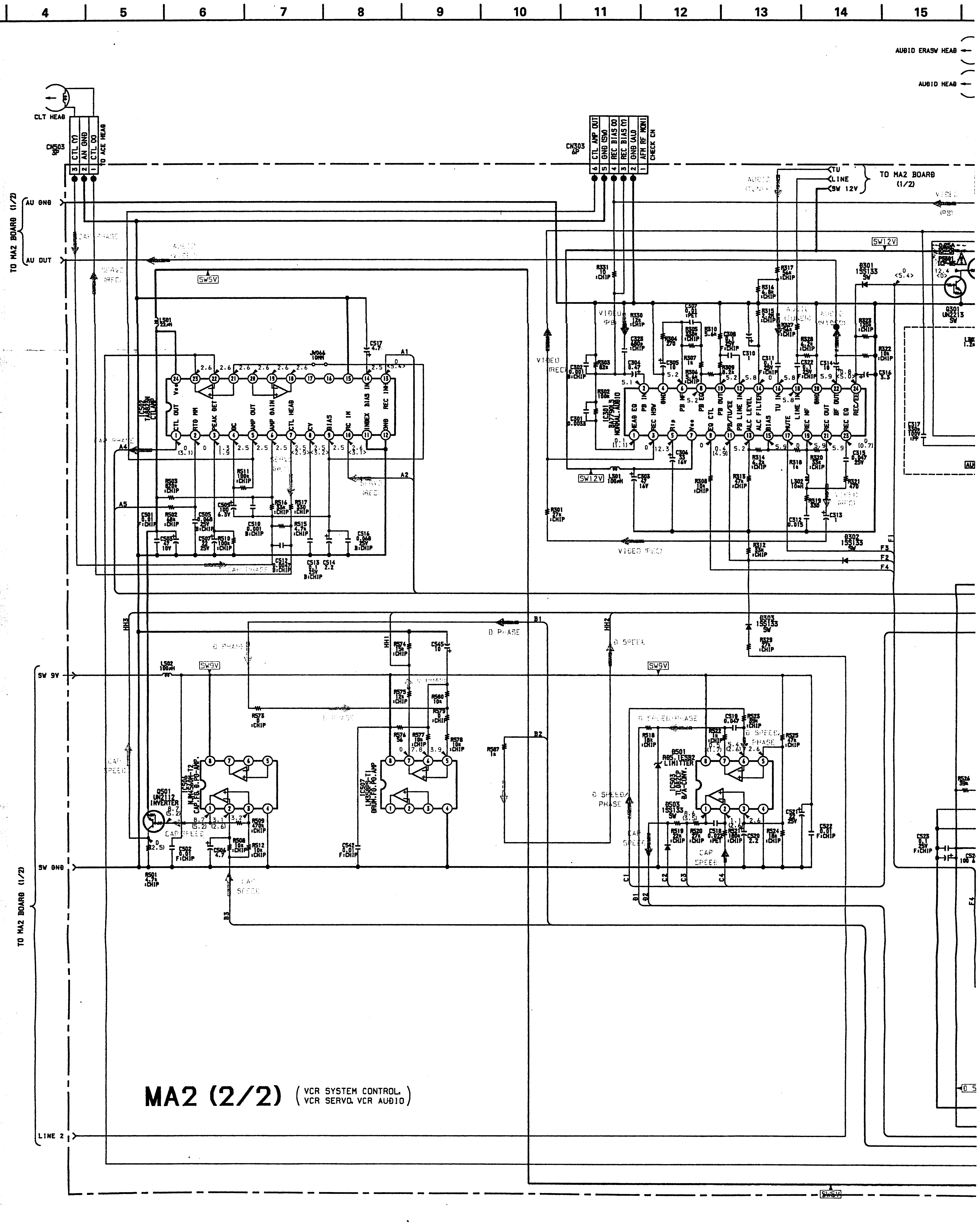
23
IC201 BA7021 VCR-IN-SW
IN1
CT1
IN2
CT2
GND
IN3
BLK
OUT
Vcc (5V)
IC204 BA7001 LINE-OUT-SW (C+)
NC
CT
GND
OUT
OUT
Vcc (9V)
IN1
IN2
IC202 BA7611AN LINE-BYPASS-SW
IN1
CTA
CTB
IN2
GND
IN3
Vcc (9V)
OUT (+6dB)
L201 100μH
Q207 2SA1037K V-BUF
SW5V
SW9V
TUY
TUA
V IN
V OUT
JJ5
JJ4
JJ3
JJ2
JJ1
JJ7
JJ8
TU
Q201 2SC2412K A-BUF
Q202 2SC2412K A-BUF
Q203 DTC114EK INVERTER
Q204 DTC114EK INVERTER
Q205 DTC114EK INVERTER
Q206 2SC2412K A-BUF
IC203 BU4053BC-T2 AUDIO-SW
AUDIO
LINE
AU OUT
BUS 1
D5V
IC001 CXP85340A MAIN-UCOM
TUPOW
MSW
VCRPOW
CRTPOW
VPULSE
HPULSE
VSS
VDD
VOL
LED5
LED4
AA1
AA2
AA3
AA4
AA5
AA6
AA7
AA9
D004 1SS133 RECT
BACK UP 5V
IC701 MB89121 CLOCK.I/O
VCC
RST
MOD0
MOD1
X0
X1
X0A
X1A
MUTE1
MUTE2
SEL1
SEL2
SEL3
SEL4
SEL5
SEL6
NC
VSS
LINE 2
VPSDET
RST OUT
PAUSE
TEST
MON1
L2 CONT
EJECT
DMS1
DMS2
DMS3
DMS4
PB
STOP
AF MIX
AVSS
SCLK
SO
SI
MON1
CLKC
PWR
FAIL
X701 32kHz
CT701
C702 4.19MHz
CN004 11P
1 VPSDET
2 D GND
3 TV V IN
4 BACK UP 5V
5 VPS/LANC CS
6 S CLK
7 SO (S1 OUT)
8 S1 (SO IN)
9 RESET
10 D 5V
11 FACT MODE
TO VP BOARD CN901
LINE 2
TO MA2 BOARD (2/2)
D704 1SS133 DC-SHIFT
D705 1SS133 DC-SHIFT
UNSW6V
IC702 PST572H-T RESET-PULSE-GEN
IC703 PST572C-T POWERFAIL-DETECT
IC002 CAT24C08P N.V.M.
Q701 UN2111 LED-DRIVER
BUS 2
BUS 3
TO MA2 BOARD (2/2)
D005 MTZJ-6.2B PROTECT
D006 MTZJ-6.2B PROTECT
D008 MTZJ-6.2B PROTECT
D009 MTZJ-6.2B PROTECT
D011 MTZJ-6.2B PROTECT
D012 MTZJ-6.2B PROTECT
D014 MTZJ-6.2B PROTECT
D015 MTZJ-6.2B PROTECT
D016 MTZJ-6.2B PROTECT
D017 MTZJ-6.2B PROTECT
D018 MTZJ-6.2B PROTECT
D019 MTZJ-6.2B PROTECT
D020 MTZJ-6.2B PROTECT
D021 MTZJ-6.2B PROTECT
R740 1k :CHIP
CN001 19P :FFC
1 SW GND
2 LED1
3 LED2
4 LED3
5 LED4
6 LED5
7 M SW
8 V IN
9 AU GND
10 L IN
11 GND
12 GND
13 KEY1
14 KEY2
15 EJECT
16 RESET
17 UNS 5V
18 SIRCS
19 D GND
TO MF1 BOARD CN101
CN002 9P
1 LED
2 GND
3 DMS1
4 DMS2
5 DMS3
6 DMS4
7 PB
8 STOP
9 PAUSE
TO MF3 BOARD CN301
• MA2 BOARD WAVEFORMS
① REC 2.5 Vp-p (H)
② REC 1.8 Vp-p (H)
③ REC 3.2 Vp-p (H)
③ PB 2.0 Vp-p (H)
④ REC 2.5 Vp-p (H)
④ PB 2.0 Vp-p (H)

MA2 (1/2)

(MAIN PCB
IN/OUTPUT SELECT
TUNER)

B-SS4714<AEP>-MA2-P1

(5) Schematic Diagram of MA2 Board (2/2)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15
AUDIO ERASW HEAD
AUDIO HEAD
CLT HEAD
CN503 5P
CTL (Y)
AN GND
CTL (X)
TO ACE HEAD
CN303 6P
CTL AMP OUT
GND (SW)
REC BIAS (X)
REC BIAS (Y)
GND (AU)
AFM RF MONI
CHECK CN
TU
LINE
SW 12V
TO MA2 BOARD (1/2)
AU GND
AU OUT
TO MA2 BOARD (1/2)
CAP PHASE
SERVO (REC)
SW5V
SW12V
SW9V
IC502 TA8633N CTL AMP
IC301 BA7790LS NORMAL AUDIO
Q301 UN2213 SW
D301 1SS133 SW
D302 1SS133 SW
D303 1SS133 SW
VIDEO (PB)
VIDEO (REC)
AUDIO (TUNER)
D PHASE
D SPEED
CAP SPEED
HH1
HH2
HH3
B1
B2
B3
C1
C2
C3
C4
F1
F2
F3
F4
A1
A2
A4
A5
SW 9V
SW GND
TO MA2 BOARD (1/2)
Q501 UN2112 INVERTER
IC506 M5218AFP-T2 CAP.FG.PG AMP.
IC507 LM358PS-T1 DRUM.FG.PG.AMP
IC503 TL082CP D/A-CONV.
D501 RD5.1ESB2 LIMITTER
D503 1SS133 SW
D SPEED/PHASE
LINE 2
MA2 (2/2)
VCR SYSTEM CONTROL, VCR SERVO, VCR AUDIO

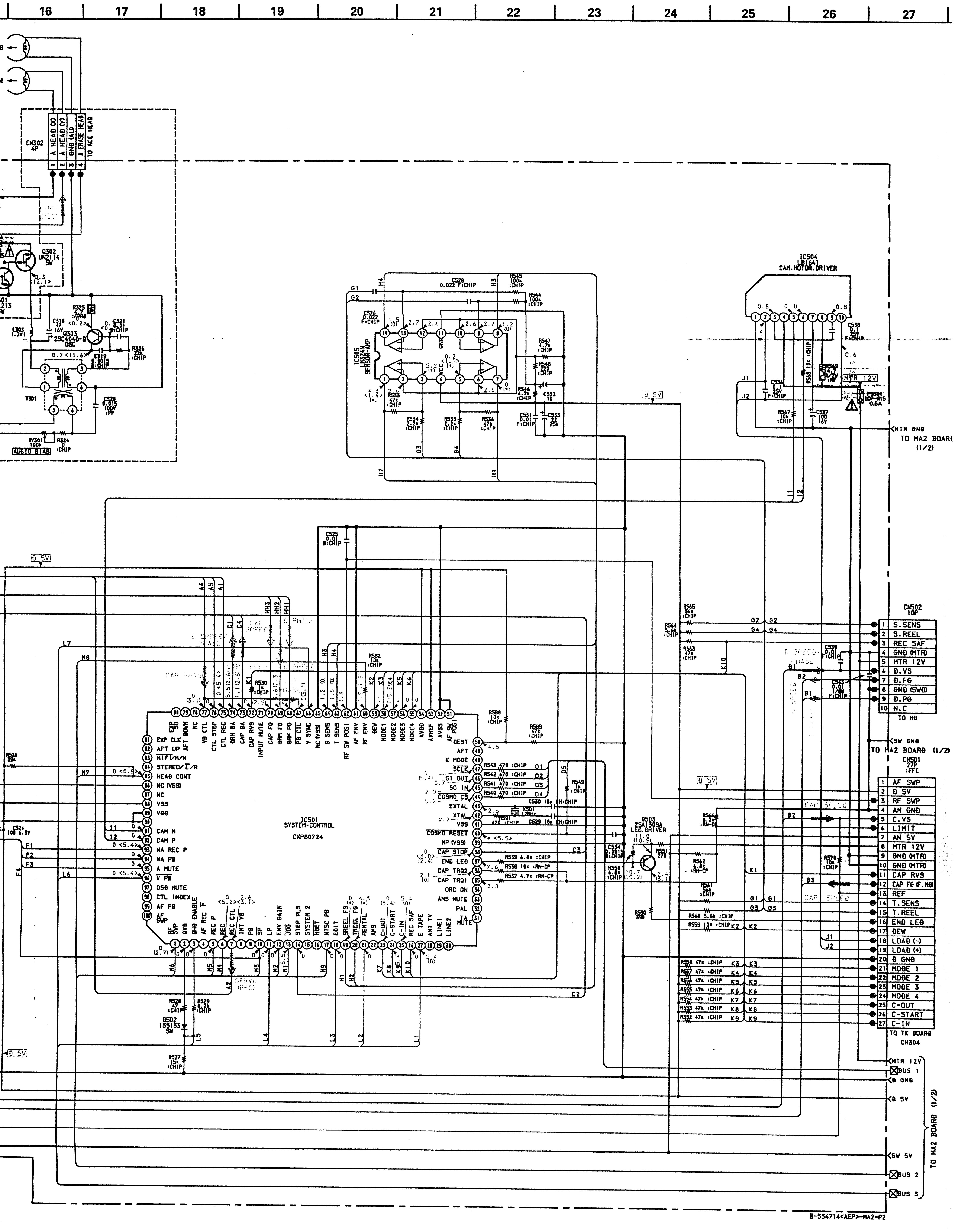
Schematic diagram

← MA2 board (1/2)

Schematic diagram

MA2 board (2/2) →

100-


16
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26
27
CN302 4P
A HEAD (X)
A HEAD (Y)
GND (AU)
A ERASE HEAD
TO ACE HEAD
Q302 UN2114 SW
Q303 2SC4040-Q OSC
T301
RV301 100k
AUDIO BIAS
IC505 LA6324M SENSOR-AMP
IC504 LB1641 CAM.MOTOR.DRIVER
MTR 12V
MTR GND
TO MA2 BOARD (1/2)
IC501 SYSTEM-CONTROL CXP80724
Q503 2SA1309A LED.DRIVER
D502 1SS133 SW
CN502 10P
S.SENS
S.REEL
REC SAF
GND (MTR)
MTR 12V
D.VS
D.FG
GND (SW)
D.PG
N.C
TO MB
SW GND
TO MA2 BOARD (1/2)
CN501 27P :FFC
AF SWP
D 5V
RF SWP
AN GND
C.VS
LIMIT
AN 5V
MTR 12V
GND (MTR)
GND (MTR)
CAP RVS
CAP FG (F.M)
REF
T.SENS
T.REEL
END LED
DEW
LOAD (-)
LOAD (+)
D GND
MODE 1
MODE 2
MODE 3
MODE 4
C-OUT
C-START
C-IN
TO TK BOARD CN304
MTR 12V
BUS 1
D GND
D 5V
SW 5V
BUS 2
BUS 3
TO MA2 BOARD (1/2)
CAP SPEED
D SPEED PHASE
D PHASE
SERVO (REC)
D 5V
B-SS4714<AEP>-MA2-P2

MA2

MAIN PCB, IN/OUTPUT SELECT
TUNER, VCR SYSTEM CONTROL,
VCR SERVO, VCR AUDIO

- **MA2 BOARD**

IC	
IC001	D – 3
IC002	D – 4
IC201	B – 3
IC202	B – 3
IC203	B – 3
IC204	B – 3
IC301	B – 6
IC501	D – 6
IC502	B – 5
IC503	C – 6
IC504	B – 6
IC505	D – 7
IC506	B – 5
IC507	B – 6
IC701	D – 4
IC702	E – 2
IC703	D – 1

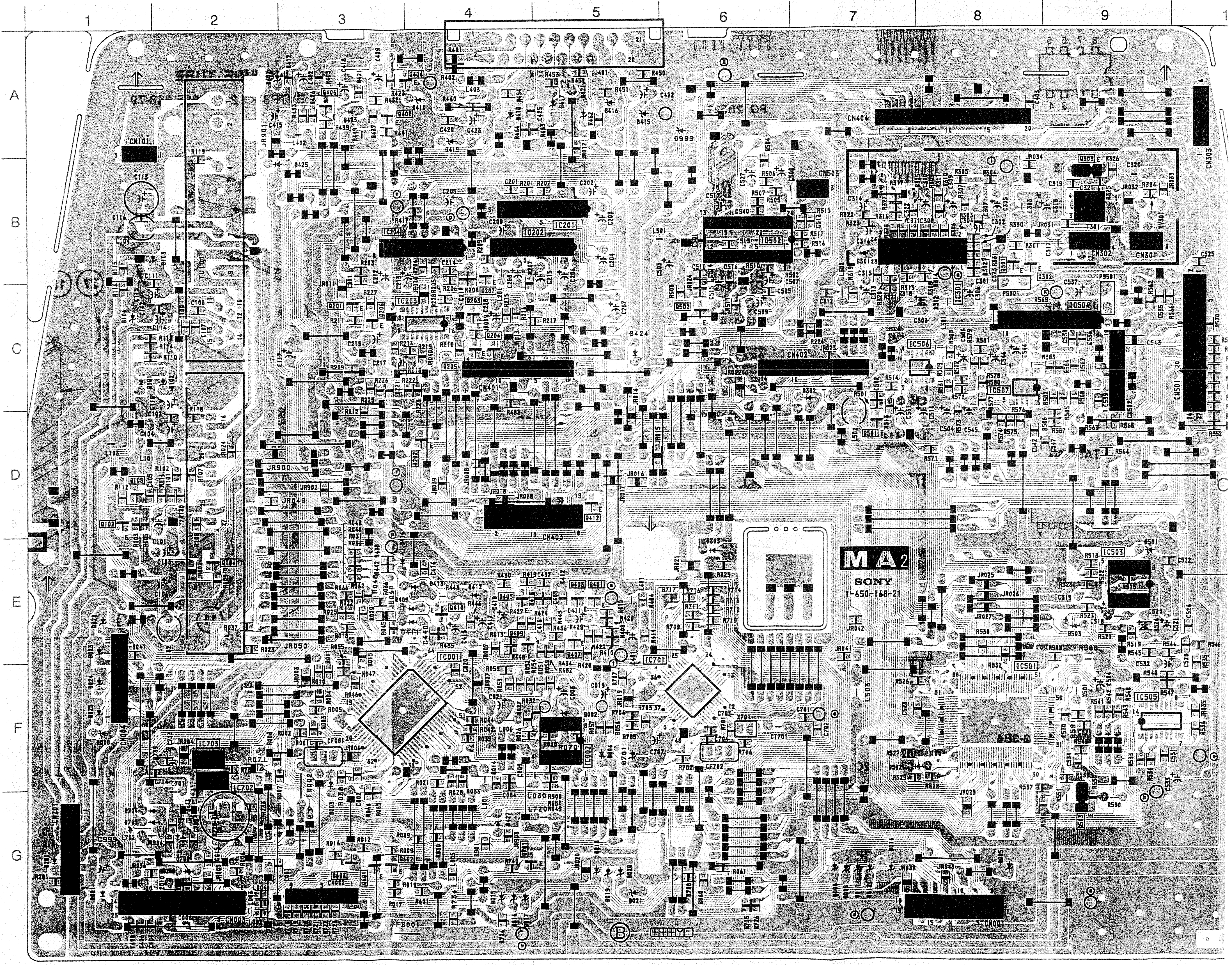
TRANSISTOR	
Q104	C – 2
Q105	C – 1
Q201	B – 2
Q202	C – 3
Q203	B – 3
Q204	B – 3
Q205	B – 3
Q206	B – 2
Q207	B – 3
Q301	B – 6
Q302	B – 6
Q303	A – 6
Q401	D – 4
Q403	D – 4
Q404	A – 3
Q405	D – 3
Q406	A – 2
Q407	D – 3
Q408	A – 3
Q409	D – 3
Q410	D – 3
Q412	C – 4
Q501	C – 5
Q503	E – 6
Q602	E – 3
Q603	E – 2
Q701	E – 3

DIODE	
D001	E – 1
D002	D – 4
D003	E – 2
D004	D – 4
D005	E – 6
D008	E – 5
D009	E – 5
D011	E – 5
D012	E – 5
D014	E – 5
D015	E – 3
D016	E – 3
D017	E – 3
D018	E – 4
D019	E – 4
D020	E – 4
D021	E – 4
D101	B – 1
D102	B – 1
D103	B – 1
D104	B – 1
D201	E – 1
D301	B – 5
D302	C – 5
D303	C – 4
D402	A – 2
D409	D – 3
D410	A – 3
D411	D – 3
D412	D – 3
D413	D – 3
D414	C – 3
D415	A – 4
D416	A – 4
D417	A – 3
D418	A – 3
D419	A – 3
D421	A – 4
D423	A – 2
D501	C – 7
D502	E – 5
D503	D – 6
D704	E – 1
D705	E – 1

TUNER	
TU101	B – 1

CRYSTAL	
X501	D – 6
X701	D – 4

– MA2 Board –


1
2
3
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5
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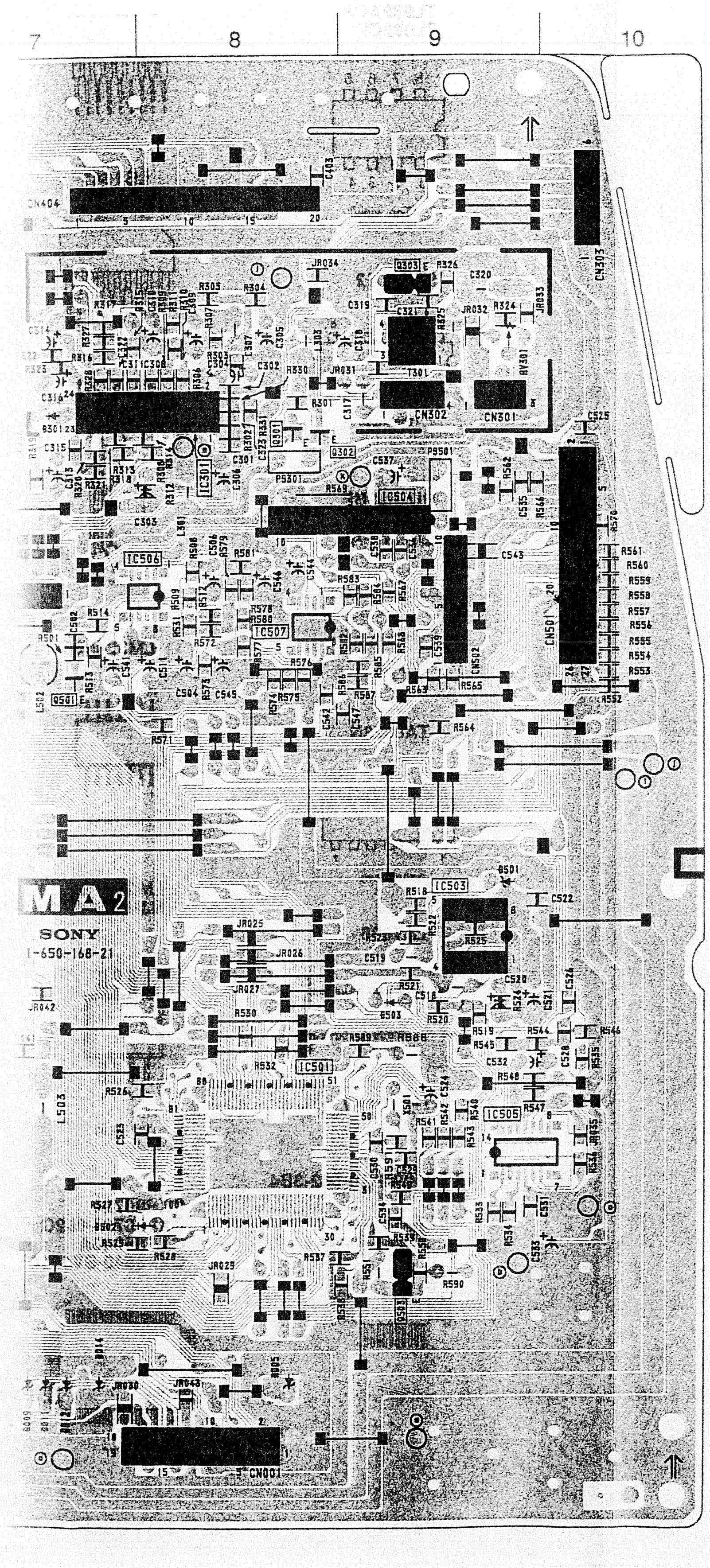
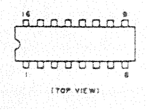
7
8
9
A
B
C
D
E
F
G
MA2
SONY
1-650-168-21
CN404
CN505
CN302
CN301
CN303
CN402
CN401
CN403
CN501
CN101
IC201
IC202
IC502
IC503
IC506
IC507
IC504
IC001
IC701
IC702
IC703
IC002
IC501
IC505


7
8
9
10
CN406
CN303
CN302
CN301
CN501
IC503
IC501
IC505
M A 2
SONY
1-650-168-21
CN001

5-5. SEMICONDUCTORS

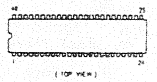
(1) TV Section

BA5412-S
CXA1315M



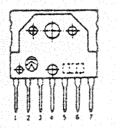
(TOP VIEW)

CXA1024S
CXA1213BS

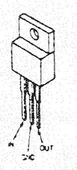


(TOP VIEW)

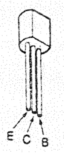
LA7830



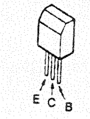
NJM78M09FA
TA7809S



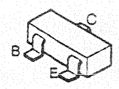
2SA1091-O



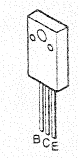
2SC3209LK
2SD774-34



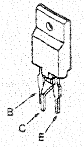
DTC144EK
2SB709A-R
2SC2712-YG
2SC2712G
2SD601A-R
2SD601A-S



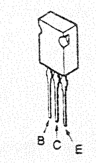
2SC4834N



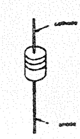
2SD1877-CA
2SD1877S-SONT-CA



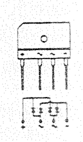
2SB1496EF



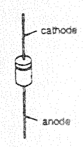
D1N20R
MTZJ-11
MTZJ-5.1
MTZJ-5.1B
MTZJ-5.6B
RD11ESB2
RD5.1ESB1
RD5.1ESB2
RD5.6ESB2
1SS119
1SS135E
1SS168


cathode
anode

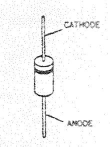
D4SB60L
D4SB60L-F



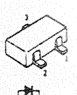
R2M


cathode
anode

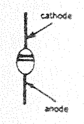
D1NS4-TR2
DINS6
EL1Z
RGP10G


CATHODE
ANODE

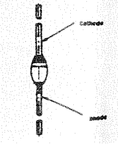
1S2837
1SS184



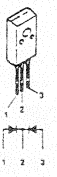
GP08D


cathode
anode

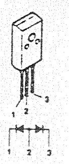
ES1F-LF-G2
RGP02-1


cathode
anode

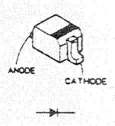
D1OSC4M



D1OSC4MR

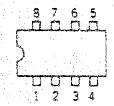


MA110


ANODE
CATHODE

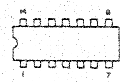
(2) Video Section

CAT24C08P
LC8992
TL082ACP
TL082CP



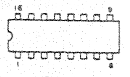
(Top view)

SDA5642



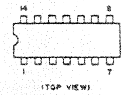
(TOP VIEW)

BU4053BF
LA7376
LA7376-A



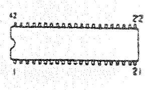
(TOP VIEW)

TA8823N



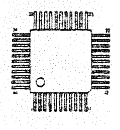
(TOP VIEW)

LA7396

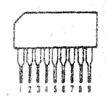


(Top view)

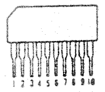
UPD75004-GB-562-3B4



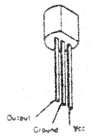
BA7021



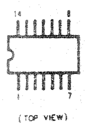
LB1641


1 2 3 4 5 6 7 8 9 10

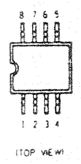
PST572H


Output
Ground
Vcc

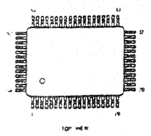
LM324NS


14
8
1
7
(TOP VIEW)

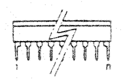
LM358PS
NJM4560M


8 7 6 5
1 2 3 4
(TOP VIEW)

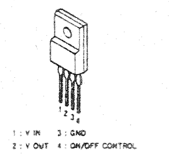
CXP80724
CXP80724-082Q
CXP85340A
CXP8540-SV4714



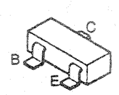
BA7001
BA7611AN



PQ12RF21

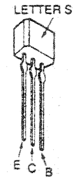

1
2
3
4
1 : V IN
2 : V OUT
3 : GND
4 : ON/OFF CONTROL

DTA114YK
DTC114EK
LA211L
UN2112
UN2114
UN211L
2SA1037K
2SA1162-G
2SB709A-R
2SC2412K
2SC2412K-QR
2SD601A-R
2SD601A-S

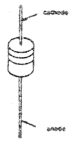


2SA1175-HFE
2SA1309A-R

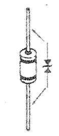
LETTER SIDE



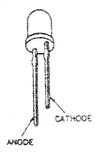
MTZJ-11
MTZJ-33B
MTZJ-5.1
MTZJ-6.2
MTZJ-6.2B
RB441Q
RD11ESB2
RD5.1ESB1
RD5.1ESB2
1SS119
1SS133


cathode
anode

RD9.IE-W



SLR-305DC3F
SLR-305VC3F


CATHODE
ANODE

SECTION 6
EXPLODED VIEWS (TV SECTION)

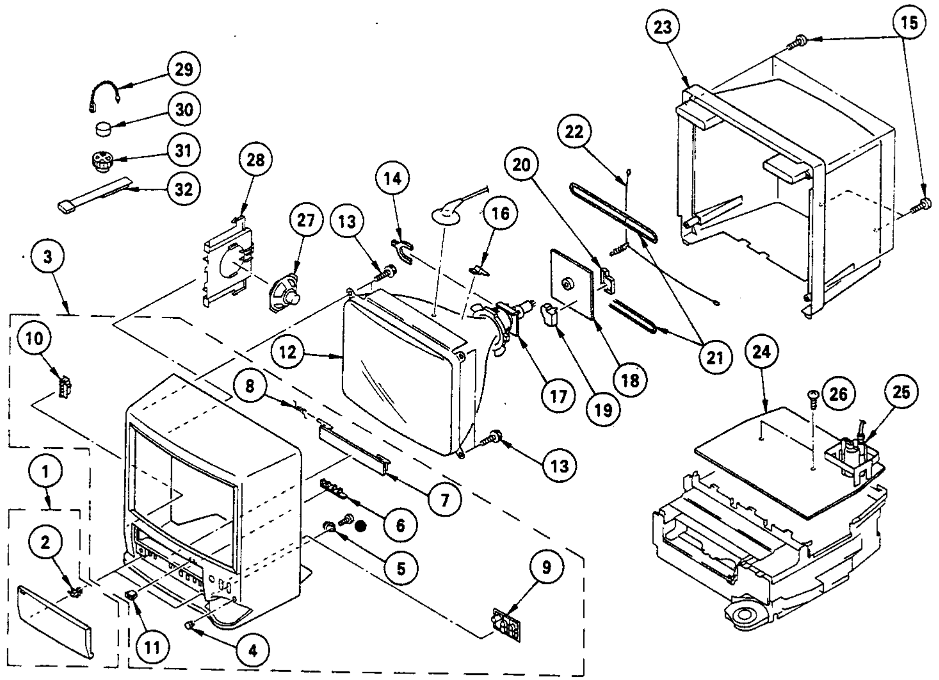
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

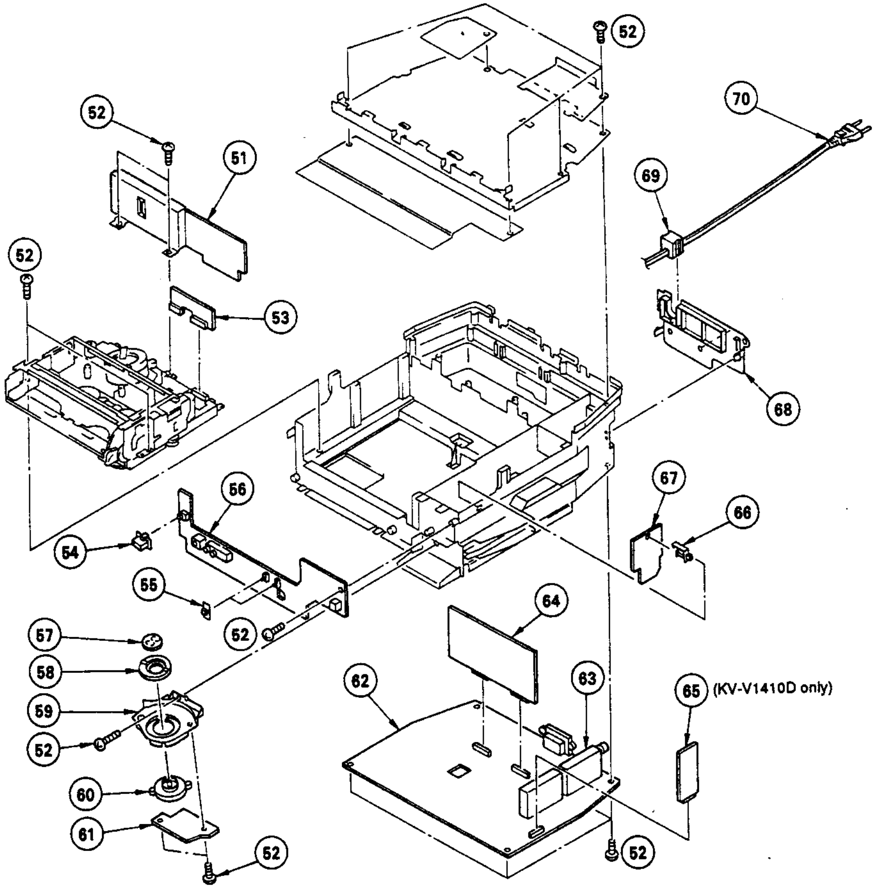
6-1. PICTURE TUBE

●: BVTP3 × 12 7-685-648-79



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4031-394-3	DOOR ASSY	2
2	3-703-035-12	SHAFT, LID	
3	X-4031-393-1	CABINET ASSY (WITH BEZEL ASSY)	4-11 (KV-V1410D)
	X-4031-396-1	CABINET ASSY (WITH BEZEL ASSY)	4-11 (KV-V1410A/V1410E)
4	4-042-008-01	FILTER, REMOTE	
5	4-919-393-51	DAMPER	
6	4-042-006-01	BUTTON, CONTROL (KV-V1410D)	
	4-042-006-11	BUTTON, CONTROL (KV-V1410A/V1410E)	
7	4-042-012-21	DOOR, CASSETTE	
8	3-950-962-01	SPRING, FL	
9	4-042-005-31	BUTTON, MULTI	
10	4-042-007-01	GUIDE (A), LIGHT	
11	*3-736-779-01	MAGNET	
12	⚠ 8-736-555-05	PICTURE TUBE (A34JBU10X)	
13	4-365-808-01	SCREW (5), TAPPING	
14	1-452-277-00	MAGNET, BMC	
15	4-039-358-01	SCREW (4X16), (+) BV TAPPING	
16	3-704-495-01	SPACER, DY	
17	⚠ 1-451-249-31	DEFLECTION YOKE Y14NDA2	
18	*A-1331-343-A	C BOARD, COMPLETE	
19	*4-374-912-01	COVER (MAIN), CV VOL	
20	*4-374-913-01	COVER (REAR LID), CV VOL	
21	⚠ 1-426-145-21	COIL, DEGAUSSING	
22	4-369-318-21	SPRING, TENSION	
23	*X-4031-706-2	COVER ASSY, REAR	
24	*A-1346-177-A	D2 BOARD, COMPLETE	
25	⚠ 1-453-119-11	TRANSFORMER ASSY, FLYBACK (NX-2820A1)	
26	4-039-356-01	SCREW (3X12), (+) BV TAPPING	
27	1-504-465-11	SPEAKER (8CM)	
28	4-042-017-01	BRACKET, SPEAKER	
29	4-308-870-00	CLIP, LEAD WIRE	
30	1-452-032-00	MAGNET, DISK; 10MM ϕ	
31	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
32	X-4309-608-0	PERMALLOY ASSY, CONVERGENCE	

6-2. MAIN BOARDS ASSEMBLY



REF.NO.	PART NO.	DESCRIPTION	REMARK
51	*A-1394-557-A	RP3 BOARD, COMPLETE	
52	4-039-356-01	SCREW (3×12), (+)BV TAPPING	
53	*1-650-181-11	TK BOARD	
54	4-042-025-01	BUTTON, POWER	
55	4-042-018-21	BUTTON, SLIDE	
56	*A-1301-920-A	MF1 BOARD, COMPLETE	
57	X-4031-445-1	BUTTON ASSY, FUNCTION	
58	3-953-514-21	RING, SHUTTLE	
59	X-4031-631-1	COVER ASSY, DMS	
60	1-572-662-61	SWITCH, ROTARY	
61	*1-650-173-11	MF3 BOARD	
62	*A-1306-446-A	MA2 BOARD, COMPLETE	
63	1-693-233-11	TUNER, VIF (BTF-2C404)	
64	*A-1394-504-A	YC2 BOARD, COMPLETE	
65	*A-1347-086-A	VP BOARD, COMPLETE (KV-V1401D)	
66	*3-682-082-00	HOLDER (S), PCB	
67	*A-1390-426-A	ZD BOARD, COMPLETE	
68	*4-043-475-01	TERMINAL BOARD	
69	⚠ 4-335-154-02	GROMMET, AC CORD	
70	⚠ 1-765-286-11	CORD, POWER 2.5A/250V	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7

ELECTRICAL PARTS LIST (TV SECTION)

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

RESISTORS
- All resistors are in ohms
- F : nonflammable

REF.NO.	PART NO.	DESCRIPTION				REMARK
	*A-1331-343-A	C BOARD, COMPLETE				
		*****************				
	*4-374-912-01	COVER (MAIN), CV VOL				
	*4-374-913-01	COVER (REAR LID), CV VOL				
		<CAPACITOR>				
C703	1-162-116-00	CERAMIC	680PF	10%	2KV	
C708	1-102-111-00	CERAMIC	270PF	10%	50V	
C712	1-102-109-00	CERAMIC	180PF	10%	50V	
C713	1-102-110-00	CERAMIC	220PF	10%	50V	
C714	1-126-233-11	ELECT	22MF	20%	25V	
C715	1-164-085-11	CERAMIC	0.001MF	10%	50V	
C716	1-126-233-11	ELECT	22MF	20%	25V	
C720	1-162-115-00	CERAMIC	330PF	10%	2KV	
		<CONNECTOR>				
CN701	1-695-915-11	TAB (CONTACT)				
CN703	*1-564-508-11	PLUG, CONNECTOR 5P				
		<SOCKET>				
CRT701⚠	1-526-819-11	SOCKET, PICTURE TUBE				
		<COIL>				
L701	1-408-423-00	INDUCTOR	150UH			
		<TRANSISTOR>				
Q704	8-729-906-70	TRANSISTOR BF871				
Q705	8-729-906-70	TRANSISTOR BF871				
Q706	8-729-906-70	TRANSISTOR BF871				
Q708	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q709	8-729-200-17	TRANSISTOR 2SA1091-O				
		<RESISTOR>				
R701	1-202-883-11	SOLID	680K	20%	1/2W	
R702	1-202-838-00	SOLID	100K	20%	1/2W	
R703	1-202-719-00	SOLID	1M	20%	1/2W	
R704	1-202-842-11	SOLID	220K	20%	1/2W	
R706	1-202-824-00	SOLID	3.3K	20%	1/2W	
R707	1-202-824-00	SOLID	3.3K	20%	1/2W	
R708	1-202-824-00	SOLID	3.3K	20%	1/2W	
R709	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R710	1-216-370-11	METAL OXIDE	1.2	5%	2W	F
R711	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R713	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R714	1-247-807-31	CARBON	100	5%	1/4W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R717	1-249-413-11	CARBON	470	5%	1/4W	
R719	1-247-807-31	CARBON	100	5%	1/4W	
R720	1-249-429-11	CARBON	10K	5%	1/4W	
R722	1-249-442-11	CARBON	510	5%	1/4W	
R723	1-249-413-11	CARBON	470	5%	1/4W	
R730	1-247-807-31	CARBON	100	5%	1/4W	
R732	1-249-415-11	CARBON	680	5%	1/4W	
R749	1-249-423-11	CARBON	3.3K	5%	1/4W	
R750	1-249-424-11	CARBON	3.9K	5%	1/4W	
R751	1-249-426-11	CARBON	5.6K	5%	1/4W	
R752	1-249-421-11	CARBON	2.2K	5%	1/4W	
R754	1-249-419-11	CARBON	1.5K	5%	1/4W	
R755	1-249-413-11	CARBON	470	5%	1/4W	
R756	1-249-411-11	CARBON	330	5%	1/4W	
R757	1-249-409-11	CARBON	220	5%	1/4W	
R758	1-249-421-11	CARBON	2.2K	5%	1/4W	
R759	1-249-421-11	CARBON	2.2K	5%	1/4W	
R760	1-249-421-11	CARBON	2.2K	5%	1/4W	
		<VARIABLE RESISTOR>				
RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M				
RV702⚠	1-230-619-11	RES, ADJ, METAL GLAZE 110M				
RV703	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M				
RV704	1-241-628-11	RES, ADJ, CARBON 2.2K				
RV705	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV706	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV707	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV708	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV709	1-241-763-11	RES, ADJ, CARBON 4.7K				
**						
	*A-1346-177-A	D2 BOARD, COMPLETE				
		******************				
	*4-381-906-01	SPRING (F)				
	4-382-854-11	SCREW (M3X10), P, SW (+)				
		<CAPACITOR>				
C027	1-124-360-00	ELECT	1000MF	20%	16V	
C032	1-126-803-11	ELECT	47MF	20%	16V	
C201	1-124-887-00	ELECT	3300MF	20%	16V	
C204	1-126-940-11	ELECT	330MF	20%	16V	
C205	1-124-477-11	ELECT	47MF	20%	25V	
C207	1-126-105-11	ELECT	1000MF	20%	35V	
C208	1-124-907-11	ELECT	10MF	20%	50V	
C210	1-124-907-11	ELECT	10MF	20%	50V	
C212	1-104-792-51	ELECT	33MF	20%	16V	
C213	1-124-907-11	ELECT	10MF	20%	50V	
C217	1-124-477-11	ELECT	47MF	20%	16V	
C217	1-124-907-11	ELECT	10MF	20%	50V	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION				REMARK
C218	1-124-927-11	ELECT	4.7MF	20%	50V	
C221	1-136-165-00	FILM	0.1MF	5%	50V	
C224	1-126-101-11	ELECT	100MF	20%	16V	
C226	1-124-927-11	ELECT	4.7MF	20%	50V	
C230	1-126-964-11	ELECT	10MF	20%	50V	
C301	1-136-169-00	FILM	0.22MF	5%	50V	
C302	1-124-925-11	ELECT	2.2MF	20%	50V	
C303	1-136-169-00	FILM	0.22MF	5%	50V	
C304	1-136-169-00	FILM	0.22MF	5%	50V	
C305	1-136-169-00	FILM	0.22MF	5%	50V	
C306	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C307	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C308	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C309	1-124-903-11	ELECT	1MF	20%	50V	
C310	1-124-907-11	ELECT	10MF	20%	50V	
C311	1-126-101-11	ELECT	100MF	20%	16V	
C312	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C313	1-136-173-00	FILM	0.47MF	5%	50V	
C314	1-136-173-00	FILM	0.47MF	5%	50V	
C315	1-136-167-00	FILM	0.15MF	5%	50V	
C316	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C317	1-164-161-11	CERAMIC CHIP	0.0022MF		50V	
C318	1-104-551-11	FILM CHIP	0.01MF	5%	16V	
C319	1-126-233-11	ELECT	22MF	20%	25V	
C320	1-124-120-11	ELECT	220MF	20%	16V	
C321	1-124-903-11	ELECT	1MF	20%	50V	
C322	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C323	1-136-169-00	FILM	0.22MF	5%	50V	
C325	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C326	1-124-907-11	ELECT	10MF	20%	50V	
C327	1-124-477-11	ELECT	47MF	20%	16V	
C331	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C335	1-164-346-11	CERAMIC CHIP	1MF		16V	
C355	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C498	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C501	1-124-120-11	ELECT	220MF	20%	16V	
C503	1-164-085-11	CERAMIC	0.001MF	10%	50V	
C512	1-131-350-00	TANTALUM	3.3MF	10%	25V	
C513	1-124-903-11	ELECT	1MF	20%	50V	
C520	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C530	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C531	1-124-482-11	ELECT	33MF	20%	25V	
C533	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C551	1-126-104-11	ELECT	470MF	20%	35V	
C552	1-104-788-11	ELECT	100MF	20%	35V	
C553	1-137-292-11	FILM CHIP	0.0068MF	5%	16V	
C555	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C558	1-124-480-11	ELECT	470MF	20%	25V	
C560	1-124-907-11	ELECT	10MF	20%	50V	
C562	1-124-443-00	ELECT	100MF	20%	10V	
C603	1-126-101-11	ELECT	100MF	20%	16V	
C615	1-164-625-11	CERAMIC	680PF	10%	500V	
C616	1-136-169-00	FILM	0.22MF	5%	50V	
C617	1-136-169-00	FILM	0.22MF	5%	50V	
C618	1-164-625-11	CERAMIC	680PF	10%	500V	
C619	1-164-625-11	CERAMIC	680PF	10%	500V	
C620	1-124-903-11	ELECT	1MF	20%	50V	
C621	1-137-216-11	FILM	0.0082MF	5%	0	
C623	1-136-601-11	FILM	0.01MF	5%	630V	
C624	1-124-564-11	ELECT	4700MF	20%	25V	
C626	1-123-024-21	ELECT	33MF		160V	
C627	1-136-601-11	FILM	0.01MF	5%	630V	
C629	1-108-686-11	MYLAR	0.0033MF	10%	200V	
C630	1-124-907-11	ELECT	10MF	20%	50V	

REF.NO.	PART NO.	DESCRIPTION				REMARK
C631	1-136-169-00	FILM	0.22MF	5%	50V	
C632	1-136-169-00	FILM	0.22MF	5%	50V	
C633	1-124-477-11	ELECT	47MF	20%	16V	
C634	1-126-943-11	ELECT	2200MF	20%	25V	
C635	1-137-438-11	FILM	0.0082MF	5%	50V	
C636	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C637	1-164-735-11	CAP, CERAMIC	1500PF			
C638	1-164-735-11	CAP, CERAMIC	1500PF			
C639	1-164-735-11	CAP, CERAMIC	1500PF			
C640	1-164-735-11	CAP, CERAMIC	1500PF			
C641	1-124-478-11	ELECT	100MF	20%	25V	
C643	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C644	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C645	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C646	1-124-556-11	ELECT	2200MF	20%	16V	
C801	1-123-024-21	ELECT	33MF		160V	
C802	1-106-371-00	MYLAR	0.015MF	10%	200V	
C805	1-102-244-00	CERAMIC	220PF	10%	500V	
C809 ⚠	1-162-116-91	CERAMIC	680PF	10%	2KV	
C810 ⚠	1-106-367-91	MYLAR	0.01MF	5%	200V	
C812	1-136-076-00	FILM	0.0085MF	3%	2KV	
C815 ⚠	1-162-116-91	FILM	680PF	10%	2KV	
C816	1-124-634-11	ELECT	1MF	20%	250V	
C820 ⚠	1-162-134-91	CERAMIC	470PF	10%	2KV	
C821	1-108-704-11	MYLAR	0.1MF	10%	200V	
C822	1-136-107-00	FILM	0.39MF	5%	200V	
C825	1-102-228-00	CERAMIC	470PF	10%	500V	
C834	1-137-323-11	FILM CHIP	0.01MF	5%	16V	
C850	1-126-105-11	ELECT	1000MF	20%	35V	
C851	1-107-637-11	ELECT	22MF	20%	160V	
C852	1-162-114-00	CERAMIC	0.0047MF		2KV	
C853	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C854	1-124-480-11	ELECT	470MF	20%	25V	
C856	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C857	1-108-702-11	MYLAR	0.068MF	10%	200V	
C860	1-102-228-00	CERAMIC	470PF	10%	500V	
C862	1-124-907-11	ELECT	10MF	20%	50V	
C870	1-104-549-11	FILM CHIP	0.0068MF	5%	16V	
C901 ⚠	1-136-517-12	FILM	0.22MF	20%	300V	
C903 ⚠	1-136-517-12	FILM	0.22MF	20%	300V	
C904 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C905 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C906 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C907 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C908 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C909 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C914 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V	
C915 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V	
C917	1-125-318-00	ELECT(BLOCK)	220MF	20%	400V	
C919	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C1401	1-136-169-00	FILM	0.22MF	5%	50V	
C1402	1-136-169-00	FILM	0.22MF	5%	50V	
C1403	1-136-169-00	FILM	0.22MF	5%	50V	
C1404	1-136-169-00	FILM	0.22MF	5%	50V	
C1405	1-136-169-00	FILM	0.22MF	5%	50V	
C1406	1-136-169-00	FILM	0.22MF	5%	50V	
C1407	1-165-319-11	CERAMIC CHIP	0.1MF		50V	
C1408	1-165-319-11	CERAMIC CHIP	0.1MF		50V	
C1409	1-164-085-11	CERAMIC	0.001MF	10%	50V	
C1413	1-124-120-11	ELECT	220MF	20%	16V	
C1414	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C1415	1-136-165-00	FILM	0.1MF	5%	50V	
C1417	1-164-346-11	CERAMIC CHIP	1MF		16V	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
C1418	1-164-346-11	CERAMIC CHIP 1MF	16V
C1456	1-126-964-11	ELECT 10MF 20%	50V
C1461	1-216-295-00	METAL GLAZE 0 5% 1/10W	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN304	*1-564-506-11	PLUG, CONNECTOR 3P	
CN305	*1-564-508-11	PLUG, CONNECTOR 5P	
CN306	1-695-348-21	PIN, CONNECTOR (PC BOARD) 25P	
CN307	1-695-330-21	PIN, CONNECTOR (PC BOARD) 7P	
CN501	*1-508-768-00	PIN, CONNECTOR (5MM PITCH) 6P	
CN901	*1-580-843-11	PIN, CONNECTOR (POWER)	
CN903	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
CN904	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
CN905	*1-564-509-11	PLUG, CONNECTOR 6P	
DY1	*1-580-798-11	CONNECTOR PIN (DY) 6P	

<TRIMMER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CV443	1-141-443-11	TRIMMER, CERAMIC	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D121	8-719-911-19	DIODE 1SS119	
D201	8-719-801-78	DIODE 1SS184	
D202	8-719-914-42	DIODE DA204K	
D203	8-719-901-33	DIODE 1SS133	
D301	8-719-110-22	DIODE RD11ESB2	
D305	8-719-109-85	DIODE RD5.1ESB2	
D310	8-719-801-78	DIODE 1SS184	
D501	8-719-901-33	DIODE 1SS133	
D510	8-719-109-84	DIODE RD5.1ESB1	
D511	8-719-982-11	DIODE MTZJ-4.3B	
D551	8-719-908-03	DIODE GP08D	
D561	8-719-901-33	DIODE 1SS133	
D581	8-719-901-33	DIODE 1SS133	
D602	8-719-901-33	DIODE 1SS133	
D604	8-719-901-33	DIODE 1SS133	
D607	8-719-510-48	DIODE D1N20R	
D608	8-719-510-48	DIODE D1N20R	
D609	8-719-510-48	DIODE D1N20R	
D610	8-719-510-48	DIODE D1N20R	
D612	8-719-032-12	DIODE D1NS6	
D613	8-719-032-12	DIODE D1NS6	
D614	8-719-510-13	DIODE D10SC4MR	
D615	8-719-510-12	DIODE D10SC4M	
D616	8-719-510-64	DIODE D1NL20	
D617	8-719-510-64	DIODE D1NL20	
D618	8-719-510-64	DIODE D1NL20	
D619	8-719-510-64	DIODE D1NL20	
D620	8-719-901-33	DIODE 1SS133	
D621	8-719-109-89	DIODE RD5.6ESB2	
D622	8-719-510-48	DIODE D1N20R	
D623	8-719-901-33	DIODE 1SS133	
D624	8-719-901-33	DIODE 1SS133	
D625	8-719-901-33	DIODE 1SS133	
D626	8-719-921-89	DIODE MTZJ-13C	
D627	8-719-901-33	DIODE 1SS133	
D629	8-719-032-10	DIODE D1NS4-TR2	
D630	8-719-032-12	DIODE D1NS6	
D631	8-719-032-10	DIODE D1NS4-TR2	
D632	8-719-303-49	DIODE R2M	
D635	8-719-901-33	DIODE 1SS133	
D636 ⚠	8-719-032-10	DIODE D1NS4-TR2	
D637 ⚠	8-719-032-10	DIODE D1NS4-TR2	
D701	8-719-901-33	DIODE 1SS133	
D804	8-719-901-33	DIODE 1SS133	
D851	8-719-302-43	DIODE EL1Z	
D852	8-719-028-71	DIODE ES1F-LF-G2	
D853	8-719-302-43	DIODE EL1Z	
D855	8-719-302-43	DIODE EL1Z	
D857	8-719-908-03	DIODE GP08D	
D858	8-719-908-03	DIODE GP08D	
D861	8-719-901-33	DIODE 1SS133	
D862	8-719-901-33	DIODE 1SS133	
D901 ⚠	8-719-510-63	DIODE D4SB60L-F	
D903	8-719-901-33	DIODE 1SS133	
D1401	8-719-010-34	DIODE UZ-4.7BSC	
D1402	8-719-404-46	DIODE MA110	
D1403	8-719-921-69	DIODE MTZJ-9.1	
D1404	8-719-921-69	DIODE MTZJ-9.1	
D1405	8-719-921-69	DIODE MTZJ-9.1	
D1406	8-719-801-78	DIODE 1SS184	
D1408	8-719-404-46	DIODE MA110	
D1409	8-719-404-46	DIODE MA110	
D1410	8-719-404-46	DIODE MA110	

<DELAY LINE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
DL301	1-415-122-31	DELAY LINE, 1H (PAL)	

<FUSE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
F901 ⚠	1-576-231-21	FUSE (H.B.C.) 4A/250V	
	1-533-230-11	HOLDER, FUSE; F901	
	4-201-057-01	COVER, FUSE; F901	

<FERRITE BEAD>

REF.NO.	PART NO.	DESCRIPTION	REMARK
FB601	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB602	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB603	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB604	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB605	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB606	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB607	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB608	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB609	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC201	8-759-174-28	IC BA5412-S	
IC203	8-759-145-27	IC UPC1406HA	
IC301	8-752-058-64	IC CXA1213BS	
IC302	8-752-058-68	IC CXA1315M	
IC304	8-752-030-31	IC CXA1024S	
IC306	8-759-701-59	IC NJM78M09FA	
IC551	8-759-801-98	IC LA7830	
IC602 ⚠	1-810-050-11	POWER MODULE DM-47	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L301	1-412-785-41	INDUCTOR 5.6UH	
L601	1-406-662-11	COIL, CHOKE 33UH	
L603	1-412-533-21	INDUCTOR 47UH	
L604	1-412-533-21	INDUCTOR 47UH	
L805 ⚠	1-409-542-11	COIL,HORIZONTAL LINEARITY(HLC)	
L808	1-412-446-11	INDUCTOR 3.3MMH	

REF.NO.	PART NO.	DESCRIPTION	REMARK
L821	1-406-677-21	COIL, CHOKE 10MMH	

<IC LINK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
PS601 ⚠	1-532-846-21	LINK, IC 5.0A	

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q024	8-729-901-01	TRANSISTOR DTC144EK	
Q101	8-729-200-17	TRANSISTOR 2SA1091-O	
Q202	8-729-901-04	TRANSISTOR DTA114EK	
Q203	8-729-422-29	TRANSISTOR 2SD601A-S	
Q204	8-729-422-29	TRANSISTOR 2SD601A-S	
Q301	8-729-422-29	TRANSISTOR 2SD601A-S	
Q302	8-729-422-29	TRANSISTOR 2SD601A-S	
Q303	8-729-422-29	TRANSISTOR 2SD601A-S	
Q304	8-729-422-29	TRANSISTOR 2SD601A-S	
Q305	8-729-422-29	TRANSISTOR 2SD601A-S	
Q306	8-729-422-29	TRANSISTOR 2SD601A-S	
Q307	8-729-901-01	TRANSISTOR DTC144EK	
Q309	8-729-422-29	TRANSISTOR 2SD601A-S	
Q310	8-729-901-01	TRANSISTOR DTC144EK	
Q311	8-729-422-37	TRANSISTOR 2SB709A-R	
Q313	8-729-422-29	TRANSISTOR 2SD601A-S	
Q314	8-729-422-29	TRANSISTOR 2SD601A-S	
Q315	8-729-422-29	TRANSISTOR 2SD601A-S	
Q316	8-729-422-29	TRANSISTOR 2SD601A-S	
Q317	8-729-901-01	TRANSISTOR DTC144EK	
Q318	8-729-422-29	TRANSISTOR 2SD601A-S	
Q319	8-729-422-29	TRANSISTOR 2SD601A-S	
Q501	8-729-422-37	TRANSISTOR 2SB709A-R	
Q551	8-729-901-01	TRANSISTOR DTC144EK	
Q552	8-729-901-01	TRANSISTOR DTC144EK	
Q601	8-729-927-85	TRANSISTOR 2SB1496EF	
Q602	8-729-422-29	TRANSISTOR 2SD601A-S	
Q603	8-729-026-69	TRANSISTOR 2SC4833F	
Q604	8-729-026-69	TRANSISTOR 2SC4833F	
Q605	8-729-927-85	TRANSISTOR 2SB1496EF	
Q606	8-729-422-29	TRANSISTOR 2SD601A-S	
Q607	8-729-422-29	TRANSISTOR 2SD601A-S	
Q608	8-729-927-85	TRANSISTOR 2SB1496EF	
Q609	8-729-422-37	TRANSISTOR 2SB709A-R	
Q611	8-729-422-37	TRANSISTOR 2SB709A-R	
Q612	8-729-422-29	TRANSISTOR 2SD601A-S	
Q613	8-729-422-29	TRANSISTOR 2SD601A-S	
Q801	8-729-140-96	TRANSISTOR 2SD774-34	
Q802	8-729-810-49	TRANSISTOR 2SD1877S-SONY-CA	
Q803	8-729-422-29	TRANSISTOR 2SD601A-S	
Q804	8-729-422-37	TRANSISTOR 2SB709A-R	
Q1406	8-729-422-37	TRANSISTOR 2SB709A-R	
Q1407	8-719-421-69	DIODE MA133	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR002	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR003	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR004	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR006	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR007	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR009	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR010	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR011	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR015	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR016	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR017	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR018	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR019	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR020	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR021	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR022	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR023	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR024	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR025	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR026	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR028	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR029	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR030	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR031	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR032	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR033	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR034	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR037	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR038	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR039	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR041	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR042	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR043	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR044	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR045	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR046	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR047	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR048	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR049	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR051	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR052	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR054	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR055	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR056	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR058	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR062	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR070	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR071	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR073	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR074	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR078	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR201	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR202	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW045	1-249-411-11	CARBON 330 5% 1/4W	
R123	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R124	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R126	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R201	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R203	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R204	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R210	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R211	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R213	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R214	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R215	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R220	1-216-117-00	METAL GLAZE 680K 5% 1/10W	
R221	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R223	1-249-395-11	CARBON 15 5% 1/4W	F
R224	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R225	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R231	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R232	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R236	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	

D2

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION				REMARK
R237	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R301	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R302	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R303	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R304	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R305	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R306	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R307	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R308	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R309	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R310	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R311	1-216-685-11	METAL CHIP	27K	0.50%	1/10W	
R312	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R313	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R314	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R315	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R316	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R317	1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R318	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R319	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R320	1-249-409-11	CARBON	220	5%	1/4W	F
R321	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R322	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R323	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R324	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R325	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R326	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R327	1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R328	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R329	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R330	1-215-861-00	METAL OXIDE	47	5%	1W	F
R331	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R332	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R333	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R334	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R335	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R336	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R337	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R338	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R339	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R341	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R350	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R351	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R352	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R353	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R354	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R355	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R356	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R357	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R359	1-216-103-91	METAL GLAZE	180K	5%	1/10W	
R360	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R362	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R370	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R371	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R372	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R373	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R374	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R376	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R377	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R379	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R380	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R381	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R385	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R386	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R390	1-216-190-00	METAL GLAZE	470	5%	1/8W	
R391	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R392	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R393	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R394	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R395	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R396	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R397	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R408	1-216-463-00	METAL OXIDE	12K	5%	2W	F
R432	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R498	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R501	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R502	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R503	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R504	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R518	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R520	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R521	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R522	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R532	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R538	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R551	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R552	1-215-867-00	METAL OXIDE	470	5%	1W	F
R553	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R556	1-216-429-00	METAL OXIDE	270	5%	1W	F
R557	1-216-393-00	METAL OXIDE	2.2	5%	3W	F
R558	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R559	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R562	1-249-412-11	CARBON	390	5%	1/4W	F
R563	1-247-885-00	CARBON	180K	5%	1/4W	
R564	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R565	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R566	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R567	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R569	1-247-887-00	CARBON	220K	5%	1/4W	
R602	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R603	1-249-377-11	CARBON	0.47	5%	1/4W	F
R604	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R607	1-249-377-11	CARBON	0.47	5%	1/4W	F
R609	1-249-420-11	CARBON	1.8K	5%	1/4W	
R610 ⚠	1-202-933-61	FUSIBLE	0.1	10%	1/2W	F
R611	1-249-420-11	CARBON	1.8K	5%	1/4W	
R612	1-216-349-00	METAL OXIDE	1	5%	1W	F
R613	1-216-349-00	METAL OXIDE	1	5%	1W	F
R614	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R615	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R616	1-215-858-00	METAL OXIDE	15	5%	1W	F
R617	1-215-858-00	METAL OXIDE	15	5%	1W	F
R618 ⚠	1-212-855-61	FUSIBLE	8.2	5%	1/4W	F
R619 ⚠	1-212-952-61	FUSIBLE	5.6	5%	1/2W	F
R620	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R621	1-249-377-11	CARBON	0.47	5%	1/4W	F
R622	1-249-377-11	CARBON	0.47	5%	1/4W	F
R623	1-249-377-11	CARBON	0.47	5%	1/4W	F
R624	1-249-417-11	CARBON	1K	5%	1/4W	F
R625	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R626	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R627	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R633	1-249-388-11	CARBON	3.9	5%	1/4W	F
R634	1-249-377-11	CARBON	0.47	5%	1/4W	F
R636	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R637	1-247-811-31	CARBON	150	5%	1/4W	F

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R640	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R641	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R642	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R643	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R645 ⚠	1-212-855-61	FUSIBLE	8.2	5%	1/4W	F
R647	1-216-425-11	METAL OXIDE	56	5%	1W	F
R648	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R649	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R650	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R651	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R652	1-249-411-11	CARBON	330	5%	1/4W	
R653	1-249-377-11	CARBON	0.47	5%	1/4W	F
R655	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R656	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R658	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R659	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R660	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R661	1-215-864-00	METAL OXIDE	150	5%	1W	F
R662	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R670	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R671	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R672	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R673	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R674	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R675	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R700	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R701	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R801	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R803	1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R805	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R806	1-216-451-11	METAL OXIDE	120	5%	2W	F
R807	1-215-881-11	METAL OXIDE	15	5%	2W	F
R810 ⚠	1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R813	1-215-893-11	METAL OXIDE	1.5K	5%	2W	F
R814	1-216-483-11	METAL OXIDE	2.7K	5%	3W	F
R815	1-216-483-11	METAL OXIDE	2.7K	5%	3W	F
R823	1-215-868-00	METAL OXIDE	680	5%	1W	F
R831	1-216-428-00	METAL OXIDE	180	5%	1W	F
R833 ⚠	1-212-865-61	FUSIBLE	22	5%	1/4W	F
R851	1-249-382-11	CARBON	1.2	5%	1/4W	F
R852	1-215-869-11	METAL OXIDE	1K	5%	1W	F
R853	1-216-398-11	METAL OXIDE	5.6	5%	3W	F
R854	1-249-377-11	CARBON	0.47	5%	1/4W	F
R855	1-249-492-11	CARBON	47K	5%	1/2W	F
R856	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R857	1-214-919-00	METAL	180K	1%	1/2W	
R858	1-216-363-00	METAL OXIDE	0.33	5%	2W	F
R859	1-247-758-11	CARBON	3.3K	5%	1/2W	F
R860	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R862	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R863	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R864	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R865	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R866	1-216-428-00	METAL OXIDE	180	5%	1W	F
R867	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R868	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R869	1-216-248-00	METAL GLAZE	120K	5%	1/8W	
R870	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R880	1-216-429-00	METAL OXIDE	270	5%	1W	F
R901 ⚠	1-244-945-91	CARBON	1M	5%	1/2W	
R902 ⚠	1-218-265-21	METAL GLAZE	8.2M	5%	1W	F
R903 ⚠	1-205-909-11	WIREWOUND	3.3	5%	10W	F
R907	1-214-927-00	CARBON	390K	5%	1/2W	
R1410	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1411	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R1414	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R1416	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R1417	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R1418	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R1421	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1422	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1423	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1424	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R1425	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R1426	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1427	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1428	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1429	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1430	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1453	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1457	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1458	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1459	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1461	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1462	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1463	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1464	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R1465	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1467	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1468	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
		<VARIABLE RESISTOR>				
RV301	1-223-235-11	RES, ADJ, CARBON 470				
RV302	1-223-241-11	RES, ADJ, CARBON 47K				
RV502	1-241-630-11	RES, ADJ, CARBON 10K				
RV503	1-241-759-21	RES, ADJ, CARBON 220				
RV551	1-224-250-99	RES, ADJ, METAL GLAZE 2.2K				
RV803	1-223-236-11	RES, ADJ, CARBON 1K				
		<RELAY>				
RY601 ⚠	1-515-720-31	RELAY				
RY901 ⚠	1-515-720-31	RELAY				
		<SWITCH>				
S801	1-572-707-11	SWITCH, LEVER				
S802	1-572-707-11	SWITCH, LEVER				
		<SPARK GAP>				
SG801	1-519-422-11	GAP, SPARK				
		<TRANSFORMER>				
T301	1-404-524-11	DAT				
T603 ⚠	1-423-563-11	TRANSFORMER, CONVERTER DRIVE				
T604 ⚠	1-423-922-11	TRANSFORMER, CONVERTER (SBT)				
T605 ⚠	1-423-564-11	TRANSFORMER, CONVERTER (PIT)				
T801	1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE				
T851 ⚠	1-453-119-11	TRANSFORMER ASSY, FLYBACK (NX-2820A1)				
T901 ⚠	1-424-391-11	TRANSFORMER, LINE FILTER				
T902 ⚠	1-424-391-11	TRANSFORMER, LINE FILTER				

D2

<THERMISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
THP501	1-800-200-00	THERMISTOR S-3K	
THP901	⚠ 1-806-165-12	THERMISTOR (POSITIVE)	

<VARISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
VDR601	1-810-052-21	VARISTOR	
VDR602	1-810-052-21	VARISTOR	

<CRYSTAL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
X301	1-577-611-11	OSCILALTOR, CERAMIC	
X443	1-567-504-11	OSCILLATOR, CRYSTAL	

<MODULE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
YCM301	1-235-833-11	YC MODULE	

****

MISCELLANEOUS
****

REF.NO.	PART NO.	DESCRIPTION	REMARK
	⚠.1-426-145-21	COIL, DEGAUSSING	
	⚠.1-451-249-31	DEFLECTION YOKE Y14NDA2	
	1-452-277-00	MAGNET, BMC	
	1-504-465-11	SPEAKER (8CM)	
	⚠.1-765-286-11	CORD, POWER 2.5A/250V	
V901	⚠.8-735-555-05	PICTURE TUBE (A34JBU10X)	

****

ACCESSARIES AND PACKING MATERIALS
****

REF.NO.	PART NO.	DESCRIPTION	REMARK
	3-757-672-11	MANUAL, INSTRUCTION (KV-V1410D) (ENGLISH/FRENCH/GERMAN/ITALIAN)	
	3-757-672-41	MANUAL, INSTRUCTION (KV-V1410E) (DUTCH/FRENCH/GERMAN/PORTUGUESE/SPANISH)	
	3-757-672-51	MANUAL, INSTRUCTION (SPANISH) (KV-V1410E)	
	3-757-672-61	MANUAL, INSTRUCTION (ITALIAN) (KV-V1410A)	
	*4-043-948-01	CUSHION (UPPER) (ASSY)	
	*4-043-949-01	CUSHION (LOWER) (ASSY)	
	*4-043-950-01	INDIVIDUAL CARTON	
	*4-380-340-01	BAG, PROTECTION	

REMOTE COMMANDER

REF.NO.	PART NO.	DESCRIPTION	REMARK
	1-467-435-11	REMOTE COMMANDER (RM-846)	
	9-907-032-01	COVER, BATTERY (FOR RM-846)	
	9-907-033-01	COVER (FOR RM-846)	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

EXPLODED VIEWS and ELECTRICAL PARTS LIST of VIDEO section

SECTION 6

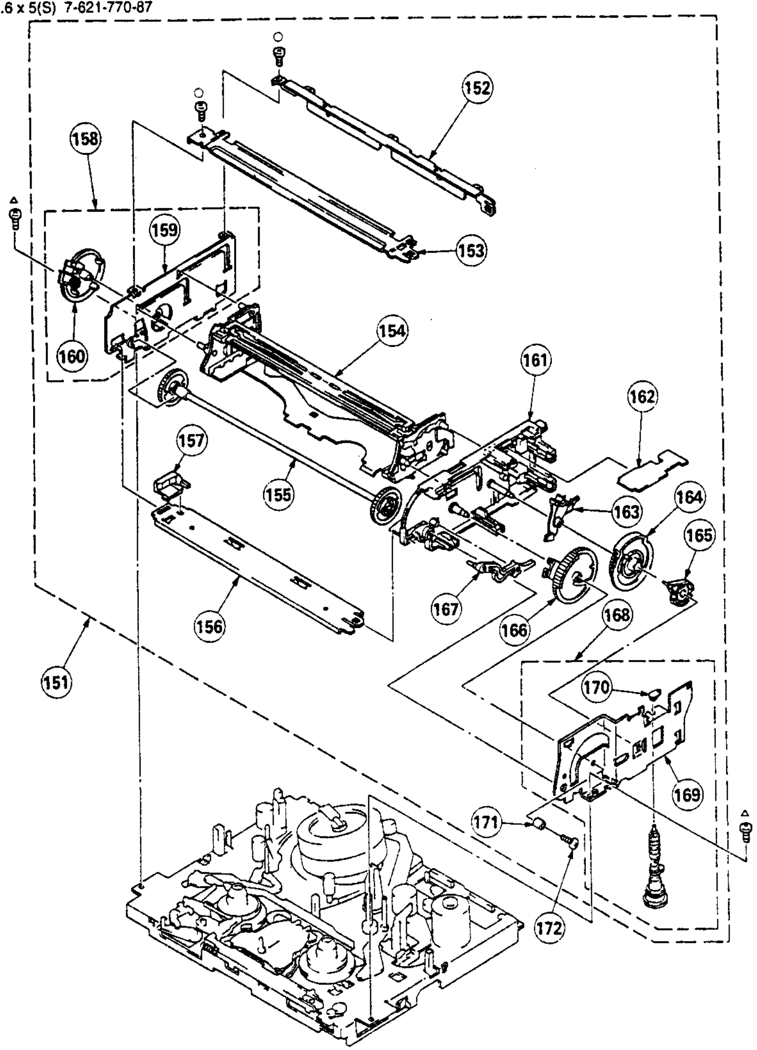
EXPLODED VIEWS (VIDEO SECTION)

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

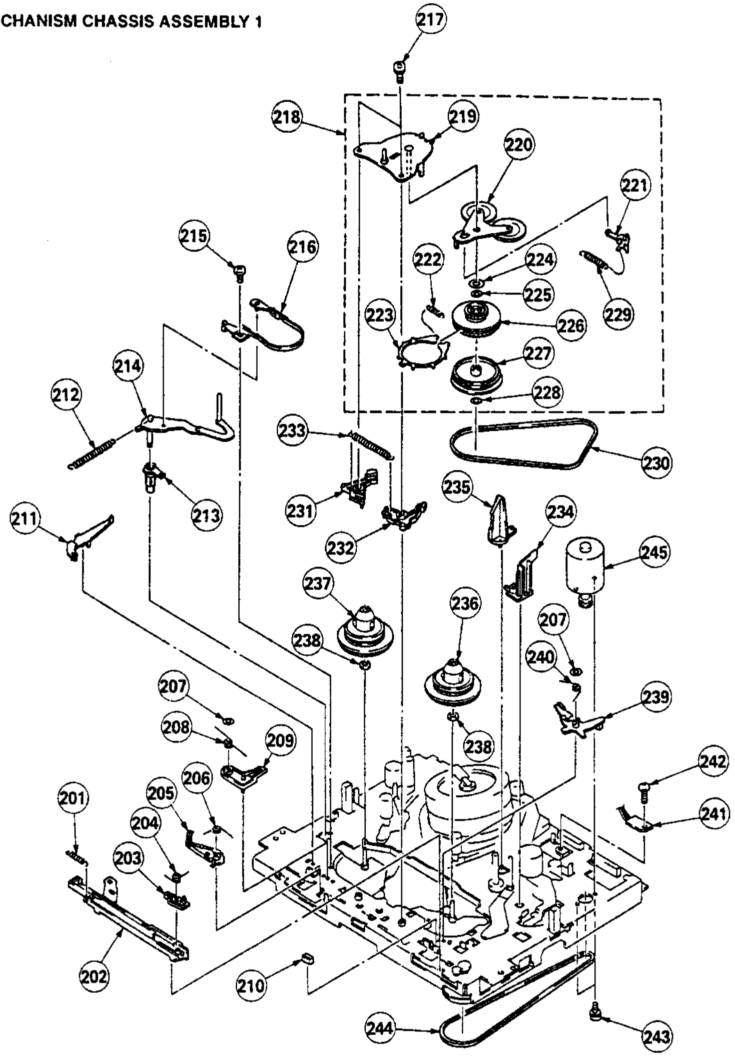
6-1. HL CASSETTE COMPARTMENT ASSEMBLY

○ : PTT 2.6 x 4(S) 7-621-773-86
△ : PTT 2.6 x 5(S) 7-621-770-87



REF.NO.	PART NO.	DESCRIPTION	REMARK
151	3-946-965-01	FL ASSY	
152	3-947-008-01	ANGLE, REAR	
153	3-946-995-01	PLATE, UPPER	
154	3-946-979-01	HOLDER ASSY, CASSETTE	
155	3-946-983-01	GEAR ASSY, SYNCHRO	
156	3-946-993-01	ANGLE, FRONT	
157	3-946-994-01	GUIDE (L), CASSETTE	
158	3-946-978-01	FRAME (L) ASSY	
159	3-947-009-01	RIVETING, FRAME (L)	
160	3-947-010-01	GEAR (L) ASSY, LIFT	
161	3-947-011-01	FRAME (R)	
162	3-946-992-01	PWB (B) ASSY, FL	
163	3-946-991-01	LEVER ASSY, SWITCH	
164	3-946-980-01	WHEEL ASSY, WORM	
165	3-946-981-01	ARM ASSY, SWITCH	
166	3-946-982-01	GEAR (R) ASSY, LIFT	
167	3-947-012-01	LEVER ASSY, LIFT	
168	3-946-990-01	COVER ASSY, FRAME	
169	3-947-013-01	COVER, FRAME	
170	3-947-020-01	BEARING (A), F WORM	
171	3-948-705-01	COLLAR	
172	3-948-706-01	SCREW (3X6)	

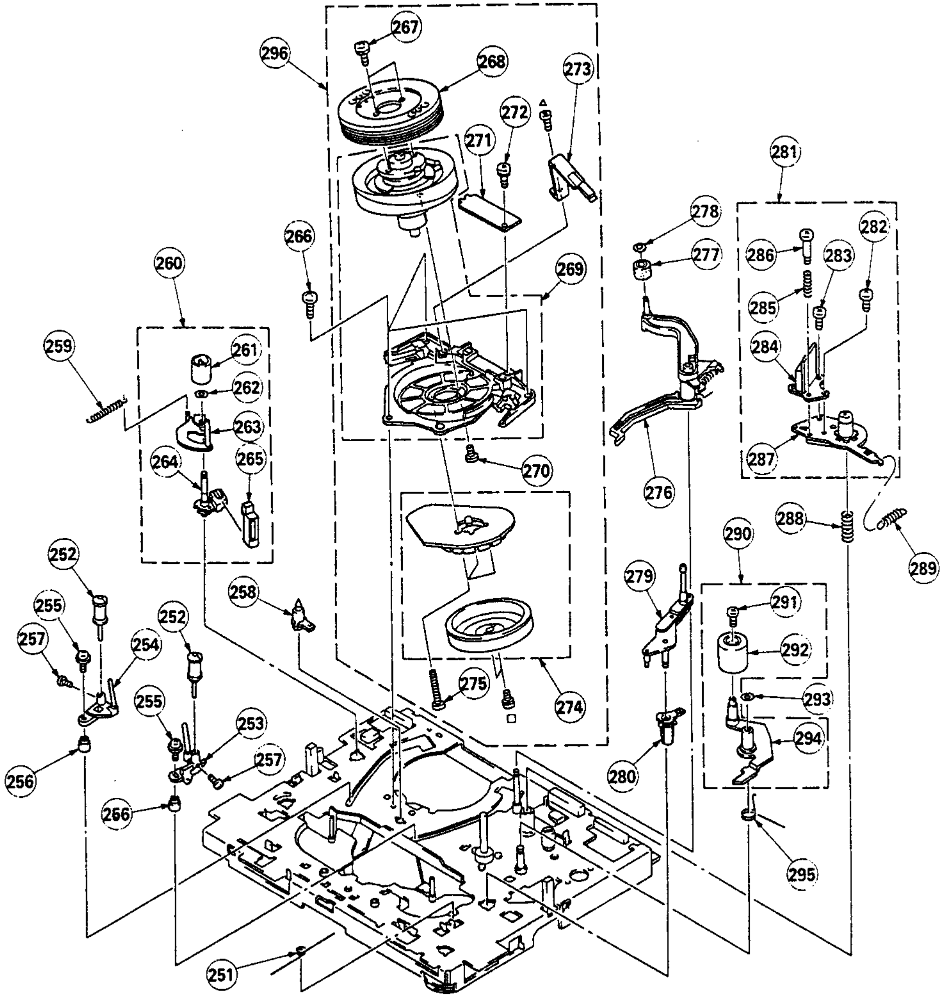
6-2. MECHANISM CHASSIS ASSEMBLY 1



REF.NO.	PART NO.	DESCRIPTION	REMARK
201	3-947-015-01	SPRING, BK SLIDE	
202	3-947-001-01	PLATE, SLIDE, BK	
203	3-947-014-01	HOOK, BK TRIGGER	
204	3-947-016-01	SPRING, TRIGGER HOOK	
205	3-946-959-01	ARM, REC	
206	3-946-947-01	SPRING, REC ARM	
207	3-946-916-01	CUT (3X6X0.5), NLW	
208	3-946-915-01	SPRING, SS ARM	
209	3-946-914-01	ARM, SS BRAKE	
210	3-947-067-01	RUBBER, DAMPER	
211	3-946-946-01	ARM, REC SWITCH	
212	3-946-937-01	SPRING, BT	
213	3-946-936-01	METAL, BT ARM	
214	3-946-934-01	ARM ASSY, TENSION	
215	3-946-966-01	SCREW (2.6X5), +C TIGHT	
216	3-946-935-01	BAND ASSY, BT	
217	3-947-000-01	SCREW (2X4), +	
218	3-951-590-01	PLATE ASSY, SUB	
219	3-952-168-01	RIVETING, SUB PLATE	
220	3-946-988-01	PLATE ASSY, GEAR	
221	3-946-987-01	ARM, CENTER RING	
222	3-946-986-01	SPRING, CHANGE RING	
223	3-946-985-01	RING, CHANGE	
224	3-946-989-01	HL (W) (C) (6.4X9X0.3)	
225	3-946-997-01	HL (W) (2.5X4.5X0.25)	
226	3-951-591-01	CLUTCH ASSY	
227	3-946-984-01	PULLEY ASSY, CLUTCH	
228	3-946-996-01	CUT (2.1X5X0.3), P.W.	
229	3-947-998-01	SPRING, CENTER RING ARM	
230	3-946-999-01	BELT, DRIVE	
231	3-947-017-01	ARM (L) ASSY, BRAKE	
232	3-947-018-01	ARM (R) ASSY, BRAKE	
233	3-947-019-01	SPRING, BRAKE ARM	
234	3-947-069-01	GUIDE BLOCK	
235	3-947-068-01	GUIDE ASSY, TAPE	
236	3-947-002-01	TABLE ASSY, REEL	
237	3-947-997-01	TABLE ASSY, S REEL	
238	3-947-003-01	WASHER (2.5X4.5X0.5)	
239	3-946-912-01	ARM ASSY, TS BRAKE	
240	3-946-913-01	SPRING, TS ARM	
241	3-947-626-01	SENSOR (EYR-S10R)	
242	3-947-996-01	SCREW (1.55X4.5X0.3)	
243	3-946-918-01	SCREW (3X4)	
244	3-946-923-01	BELT, LOADING	
245	3-946-917-01	MOTOR ASSY, L	

6-3. MECHANISM CHASSIS ASSEMBLY 2

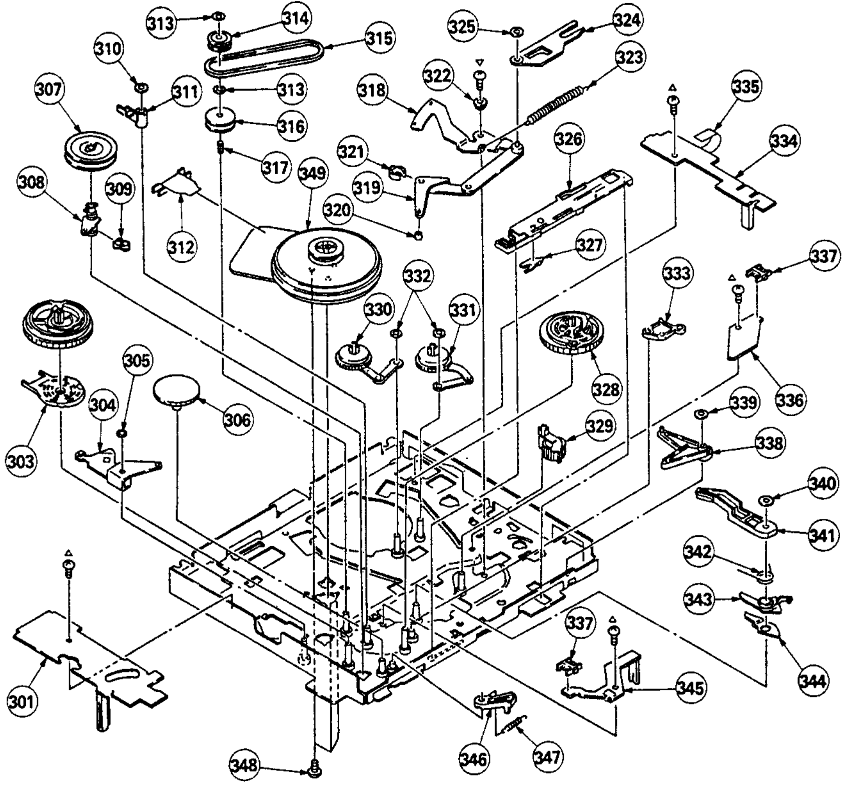
△ : PTT 2.6 x 5(S) 7-621-770-87
□ : PS 2.6 x 5 7-628-254-05



REF.NO.	PART NO.	DESCRIPTION	REMARK
251	3-947-022-01	SPRING, RG ARM	
252	3-947-073-01	POST, ROLLER	
253	3-947-072-01	L BLOCK (R) ASSY	
254	3-947-071-01	L BLOCK (L) ASSY	
255	3-947-078-01	SCREW (2.6X3), + CUP	
256	3-947-077-01	BOSS, LOADING	
257	3-947-074-01	SCREW (2X2.3)	
258	3-947-070-01	BOSS, CASSETTE GUIDE	
259	3-948-474-01	SPRING, F POST	
260	3-946-972-01	FE (BASE) ASSY	
261	3-946-975-01	ROLLER, IMPEDANCE	
262	3-946-977-01	CUT (1.6X3.8X0.3), W	
263	3-946-976-01	ARM ASSY, F POST	
264	3-946-974-01	HEAD (HVFHG0003), FE	
265	3-946-973-01	HEAD (HV113001), FE	
266	3-947-066-01	SCREW (3X7), +C TIGHT	
267	3-947-060-01	SCREW (3X8)	
268	3-949-187-01	DRUM (TP83-011), UPPER	
269	3-947-046-01	CYLINDER (MOUNT)	
270	3-947-061-01	SCREW (2X6), CAMERA B TIGHT	
271	3-947-047-01	PC BOARD ASSY, VIDEO OUT	
272	3-947-064-01	SCREW (2.6X6), S TIGHT	
273	3-947-999-01	GROUND ASSY, DRUM	
274	3-947-043-01	MOTOR (E20EL), DRUM	
275	3-947-065-01	SCREW (2.6X16)	
276	3-947-080-01	LEVER ASSY, CLEANING	
277	3-947-624-01	ROLLER, CLEANING	
278	3-947-625-01	CUT(2.1X5X0.3), POLY-SLIDER(W)	
279	3-947-021-01	ARM ASSY, RG	
280	3-946-936-01	METAL, BT ARM	
281	3-947-081-01	AH (BASE) ASSY	
282	3-946-929-01	SCREW (2.6X8), PAN	
283	3-946-930-01	SCREW (2.6X7), + PAN	
284	3-947-082-01	HEAD (HVMZA1136), ACE	
285	3-947-083-01	SP, AZIMUTH	
286	3-946-928-01	SCREW, AZIMUTU SP	
287	3-946-931-01	HOLDER ASSY, AH (BASE)	
288	3-946-933-01	SPRING, AH (BASE)	
289	3-946-932-01	SPRING, X ADJ	
290	3-947-004-01	ARM ASSY, P ROLLER	
291	3-947-007-01	SCREW (2.6X4), + BIND	
292	3-947-005-01	PINCH ROLLER	
293	3-947-024-01	HL (C) (3.5X5.5X0.5)	
294	3-947-006-01	RIVETING, P ROLLER ARM	
295	3-947-025-01	SPRING, P ARM	
296	3-949-186-01	CYLINDER ASSY	

6-4. MECHANISM CHASSIS ASSEMBLY 3

△ : PTT 2.6 x 5(S) 7-621-770-87
▽ : PTT 3 x 6(S) 7-682-547-04



REF.NO.	PART NO.	DESCRIPTION	REMARK
301	3-946-954-01	PWB ASSY, BASE	
303	3-946-958-01	SWITCH, MODE	
304	3-947-026-01	PLATE ASSY	
305	3-947-027-01	CUT (3X6X0.5), POLY-SLIDER (W)	
306	3-946-922-01	GEAR, LOADING	
307	3-946-921-01	PULLEY, LOADING	
308	3-946-919-01	METAL ASSY, L PULLEY	
309	3-946-920-01	ARM ASSY, TRG GEAR	
310	3-946-964-01	CUT (2.1X5X0.5)	
311	3-946-961-01	ARM, BREAKER	
312	3-947-029-01	LEAD ASSY, CM	
313	3-946-963-01	CUT (2.1X4X0.4)	
314	3-946-950-01	PULLEY ASSY, RE	
315	3-946-962-01	BELT, FL	
316	3-946-951-01	PULLEY, EJECT	
317	3-946-960-01	SPRING, BREAKER	
318	3-946-926-01	RIVETING, L JOINT PLATE	
319	3-946-952-01	STOPPER, GEAR PLATE	
320	3-946-941-01	ROLLER, CAM	
321	3-946-945-01	STOPPER, L LEVER	
322	3-946-940-01	COLLAR, L GEAR PLATE	
323	3-946-927-01	SPRING, L GR PLATE	
324	3-946-939-01	PLATE, UP, BT PULL	
325	3-946-967-01	CUT (2.1X4X0.5)	
326	3-946-943-01	PLATE, SLIDE, M	
327	3-946-944-01	LEVER	
328	3-946-925-01	GEAR, L CAM	
329	3-946-998-01	ARM ASSY, RF GEAR	
330	3-947-075-01	GEAR (L) ASSY, T THREADING	
331	3-947-076-01	GEAR (R) ASSY, T THREADING	
332	3-947-079-01	HL (C) (4.7X7X0.5)	
333	3-946-942-01	LEVER, M	
334	3-946-957-01	PWB ASSY, DM	
335	3-946-949-01	LEAD (EPC) (BNCD-6-63),DM	
336	3-946-956-01	PWB ASSY, S SENSOR	
337	3-946-948-01	JOINER (MCN40011), PWB	
338	3-946-938-01	LEVER, BT	
339	3-946-968-01	CUT (3X7.5X0.5), HLW	
340	3-947-035-01	CUT (2.6X6X0.5)	
341	3-947-033-01	LEVER, CB RETURN	
342	3-947-031-01	SPRING, C BRAKE	
343	3-947-032-01	LEVER, C BRAKE	
344	3-947-030-01	ARM ASSY, C BRAKE	
345	3-946-955-01	PWB ASSY, T SENSOR	
346	3-946-910-01	ARM, BK RELEASE	
347	3-946-911-01	SPRING, RESET	
348	3-947-034-01	SCREW (2.6X7), + C TIGHT	
349	3-947-028-01	MOTOR (F2QKB38)	

SECTION 7

MF1 **MF3**

ELECTRICAL PARTS LIST (VIDEO SECTION)

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

*A-1301-920-A MF1 BOARD, COMPLETE
****

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C103	1-101-003-00	CERAMIC 0.0047MF	50V
C107	1-102-074-00	CERAMIC 0.001MF 10%	50V

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN101	1-695-380-21	PIN, CONNECTOR (PC BOARD) 19P	
CN102	1-695-368-21	PIN, CONNECTOR (PC BOARD) 7P	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D101	8-719-028-30	DIODE SPR-39MVWF	
D102	8-719-992-26	DIODE SLR-305DC3F	
D103	8-719-992-24	DIODE SLR-305VC3F	
D104	8-719-992-24	DIODE SLR-305VC3F	
D105	8-719-992-24	DIODE SLR-305VC3F	
D109	8-719-921-54	DIODE MTZJ-6.2B	
D110	8-719-921-54	DIODE MTZJ-6.2B	
D111	8-719-921-54	DIODE MTZJ-6.2B	
D112	8-719-921-54	DIODE MTZJ-6.2B	
D113	8-719-921-54	DIODE MTZJ-6.2B	
D116	8-719-921-54	DIODE MTZJ-6.2B	
D302	8-719-109-93	DIODE RD6.2ESB2	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC101	1-466-833-11	RAY-CATCHER BLOCK, REMOCON	

<JACK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
J101	1-691-293-21	JACK	
J102	1-695-451-11	JACK, PIN 2P	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L101	1-410-509-11	INDUCTOR 10UH	
L103	1-410-509-11	INDUCTOR 10UH	
L105	1-410-316-11	INDUCTOR 1UH	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
R101	1-247-807-31	CARBON 100 5% 1/4W	
R102	1-247-807-31	CARBON 100 5% 1/4W	
R103	1-247-807-31	CARBON 100 5% 1/4W	
R104	1-247-807-31	CARBON 100 5% 1/4W	
R105	1-247-804-11	CARBON 75 5% 1/4W	
R107	1-249-415-11	CARBON 680 5% 1/4W	
R108	1-249-418-11	CARBON 1.2K 5% 1/4W	
R109	1-249-420-11	CARBON 1.8K 5% 1/4W	
R110	1-249-423-11	CARBON 3.3K 5% 1/4W	
R111	1-249-428-11	CARBON 8.2K 5% 1/4W	
R112	1-249-415-11	CARBON 680 5% 1/4W	
R113	1-249-418-11	CARBON 1.2K 5% 1/4W	
R114	1-249-420-11	CARBON 1.8K 5% 1/4W	
R115	1-249-423-11	CARBON 3.3K 5% 1/4W	
R116	1-249-428-11	CARBON 8.2K 5% 1/4W	
R118	1-249-421-11	CARBON 2.2K 5% 1/4W	
R119	1-249-406-11	CARBON 120 5% 1/4W	
R120	1-249-418-11	CARBON 1.2K 5% 1/4W	
R121	1-249-418-11	CARBON 1.2K 5% 1/4W	

<SWITCH>

REF.NO.	PART NO.	DESCRIPTION	REMARK
S101	1-572-200-11	SWITCH, KEYBOARD	
S102	1-572-200-11	SWITCH, KEYBOARD	
S103	1-572-200-11	SWITCH, KEYBOARD	
S104	1-572-200-11	SWITCH, KEYBOARD	
S105	1-572-200-11	SWITCH, KEYBOARD	
S106	1-572-908-11	SWITCH, SLIDE	
S107	1-572-200-11	SWITCH, KEYBOARD	
S108	1-572-200-11	SWITCH, KEYBOARD	
S110	1-572-200-11	SWITCH, KEYBOARD	
S111	1-572-200-11	SWITCH, KEYBOARD	
S112	1-572-200-11	SWITCH, KEYBOARD	
S113	1-572-907-11	SWITCH, SLIDE	
S114	1-554-118-00	SWITCH, PUSH (1 KEY)	

****

*1-650-173-11 MF3 BOARD
****

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN301	1-506-488-11	PIN, CONNECTOR 9P	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D301	8-719-992-26	DIODE SLR-305DC3F	

<SWITCH>

REF.NO.	PART NO.	DESCRIPTION	REMARK
S301	1-572-662-61	SWITCH, ROTARY	
S302	1-572-200-11	SWITCH, KEYBOARD	

****

MA2

*A-1306-446-A MA2 BOARD, COMPLETE
****

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C001	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C002	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C003	1-124-126-00	ELECT 47MF 20%	10V
C004	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C006	1-163-095-00	CERAMIC CHIP 12PF 5%	50V
C008	1-163-095-00	CERAMIC CHIP 12PF 5%	50V
C009	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C010	1-163-095-00	CERAMIC CHIP 12PF 5%	50V
C015	1-163-095-00	CERAMIC CHIP 12PF 5%	50V
C019	1-124-907-11	ELECT 10MF 20%	50V
C020	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C021	1-124-443-00	ELECT 100MF 20%	10V
C103	1-124-499-11	ELECT 1MF 20%	50V
C104	1-126-233-11	ELECT 22MF 20%	25V
C105	1-164-161-11	CERAMIC CHIP 0.0022MF 10%	50V
C106	1-126-103-11	ELECT 470MF 20%	16V
C110	1-124-907-11	ELECT 10MF 20%	50V
C113	1-124-120-11	ELECT 220MF 20%	16V
C114	1-124-126-00	ELECT 47MF 20%	10V
C115	1-124-907-11	ELECT 10MF 20%	50V
C117	1-124-907-11	ELECT 10MF 20%	50V
C202	1-124-477-11	ELECT 47MF 20%	16V
C203	1-124-477-11	ELECT 47MF 20%	16V
C204	1-124-477-11	ELECT 47MF 20%	16V
C205	1-124-477-11	ELECT 47MF 20%	16V
C206	1-124-477-11	ELECT 47MF 20%	16V
C207	1-124-477-11	ELECT 47MF 20%	16V
C208	1-124-477-11	ELECT 47MF 20%	16V
C209	1-124-477-11	ELECT 47MF 20%	16V
C212	1-124-477-11	ELECT. 47MF 20%	16V
C213	1-124-477-11	ELECT 47MF 20%	16V
C215	1-124-477-11	ELECT 47MF 20%	16V
C217	1-124-903-11	ELECT 1MF 20%	50V
C218	1-124-903-11	ELECT 1MF 20%	50V
C219	1-124-477-11	ELECT 47MF 20%	16V
C302	1-163-009-11	CERAMIC CHIP 0.001MF 10%	50V
C303	1-124-477-11	ELECT 47MF 20%	16V
C304	1-124-902-00	ELECT 0.47MF 20%	50V
C305	1-124-927-11	ELECT 4.7MF 20%	50V
C306	1-104-792-51	ELECT 33MF 20%	16V
C307	1-130-483-00	MYLAR 0.01MF 5%	50V
C308	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C310	1-124-903-11	ELECT 1MF 20%	50V
C311	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C312	1-163-022-00	CERAMIC CHIP 0.012MF 10%	50V
C313	1-124-903-11	ELECT 1MF 20%	50V
C314	1-124-907-11	ELECT 10MF 20%	50V
C316	1-126-962-11	ELECT 3.3MF 20%	50V
C317	1-130-012-00	FILM 330PF 5%	50V
C318	1-124-477-11	ELECT 47MF 20%	16V
C319	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C320	1-137-350-11	FILM 0.015MF 5%	100V
C321	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C322	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C323	1-163-137-00	CERAMIC CHIP 680PF 5%	50V
C401	1-124-477-11	ELECT 47MF 20%	16V
C402	1-126-926-11	ELECT 1000MF 20%	10V
C404	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C405	1-163-001-11	CERAMIC CHIP 220PF 10%	50V
C406	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C407	1-163-809-11	CERAMIC CHIP 0.047MF 10%	25V
C408	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C409	1-124-925-11	ELECT 2.2MF 20%	50V
C410	1-124-903-11	ELECT 1MF 20%	50V
C411	1-124-903-11	ELECT 1MF 20%	50V
C412	1-163-833-00	CERAMIC CHIP 0.068MF	25V
C413	1-126-101-11	ELECT 100MF 20%	16V
C414	1-163-001-11	CERAMIC CHIP 220PF 10%	50V
C415	1-124-477-11	ELECT 47MF 20%	16V
C416	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C417	1-126-233-11	ELECT 22MF 20%	25V
C418	1-126-103-11	ELECT 470MF 20%	16V
C420	1-163-005-11	CERAMIC CHIP 470PF 10%	50V
C422	1-124-477-11	ELECT 47MF 20%	16V
C423	1-124-925-11	ELECT 2.2MF 20%	50V
C425	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C440	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C501	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C502	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C503	1-124-126-00	ELECT 47MF 20%	10V
C505	1-164-344-11	CERAMIC CHIP 0.068MF 10%	25V
C506	1-124-927-11	ELECT 4.7MF 20%	50V
C507	1-126-233-11	ELECT 22MF 20%	25V
C508	1-124-907-11	ELECT 10MF 20%	50V
C509	1-124-443-00	ELECT 100MF 20%	6.3V
C510	1-164-182-11	CERAMIC CHIP 0.0033MF 10%	50V
C511	1-124-126-00	ELECT 47MF 20%	10V
C512	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C513	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C514	1-124-925-11	ELECT 2.2MF 20%	50V
C516	1-164-344-11	CERAMIC CHIP 0.068MF 10%	25V
C517	1-124-927-11	ELECT 4.7MF 20%	50V
C518	1-130-487-00	MYLAR 0.022MF 5%	50V
C519	1-130-487-00	MYLAR 0.022MF 5%	50V
C520	1-124-925-11	ELECT 2.2MF 20%	50V
C521	1-126-233-11	ELECT 22MF 20%	25V
C522	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C523	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C524	1-124-443-00	ELECT 100MF 20%	6.3V
C525	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C526	1-163-033-00	CERAMIC CHIP 0.022MF	50V
C527	1-124-903-11	ELECT 1MF 20%	50V
C528	1-163-033-00	CERAMIC CHIP 0.022MF	50V
C529	1-163-099-00	CERAMIC CHIP 18PF 5%	50V
C530	1-163-099-00	CERAMIC CHIP 18PF 5%	50V
C531	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C532	1-124-907-11	ELECT 10MF 20%	50V
C533	1-126-233-11	ELECT 22MF 20%	25V
C534	1-163-011-11	CERAMIC CHIP 0.0015MF 10%	50V
C536	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C537	1-126-101-11	ELECT 100MF 20%	16V
C538	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C539	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C540	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C541	1-124-907-11	ELECT 10MF 20%	50V
C542	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C543	1-163-059-00	CERAMIC CHIP 0.01MF	50V
C546	1-124-907-11	ELECT 10MF 20%	50V
C547	1-163-001-11	CERAMIC CHIP 220PF 10%	50V
C702	1-163-245-11	CERAMIC CHIP 56PF 5%	50V
C704	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C705	1-163-038-00	CERAMIC CHIP 0.1MF	25V

REF.NO.	PART NO.	DESCRIPTION	REMARK
C707	1-124-443-00	ELECT 100MF 20%	10V
C708	1-126-103-11	ELECT 470MF 20%	16V
C709	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C710	1-125-710-11	CAP, DOUBLE LAYER 0.10F	
C711	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C714	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C715	1-163-038-00	CERAMIC CHIP 0.1MF	25V

<FILTER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CF001	1-577-101-11	VIBRATOR, CERAMIC	
CF702	1-577-101-11	VIBRATOR, CERAMIC	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN001	1-695-380-21	PIN, CONNECTOR (PC BOARD) 19P	
CN002	1-506-488-11	PIN, CONNECTOR 9P	
CN003	1-563-602-11	CONNECTOR, FLEXIBLE 25P	
CN004	*1-573-843-11	CONNECTOR, BOARD TO BOARD 11P	
CN101	1-695-915-11	TAB (CONTACT)	
CN201	*1-564-512-11	PLUG, CONNECTOR 9P	
CN301	*1-560-891-00	PIN, CONNECTOR 3P	
CN302	*1-560-892-00	PIN, CONNECTOR 4P	
CN303	*1-564-521-11	PLUG, CONNECTOR 6P	
CN401	1-573-846-11	CONNECTOR, BOARD TO BOARD 14P	
CN402	1-573-846-11	CONNECTOR, BOARD TO BOARD 14P	
CN403	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN501	1-695-350-11	PIN, CONNECTOR (PC BOARD) 27P	
CN502	*1-568-787-11	PIN, CONNECTOR 10P	
CN503	*1-560-891-00	PIN, CONNECTOR 3P	

<TRIMMER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CT701	1-141-227-00	CAP, TRIMMER	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D001	8-719-200-82	DIODE 11ES2	
D002	8-719-921-54	DIODE MTZJ-6.2B	
D003	8-719-921-54	DIODE MTZJ-6.2B	
D004	8-719-901-33	DIODE 1SS133	
D005	8-719-921-54	DIODE MTZJ-6.2B	
D008	8-719-921-54	DIODE MTZJ-6.2B	
D009	8-719-921-54	DIODE MTZJ-6.2B	
D011	8-719-921-54	DIODE MTZJ-6.2B	
D012	8-719-921-54	DIODE MTZJ-6.2B	
D014	8-719-921-54	DIODE MTZJ-6.2B	
D015	8-719-921-54	DIODE MTZJ-6.2B	
D016	8-719-921-54	DIODE MTZJ-6.2B	
D017	8-719-921-54	DIODE MTZJ-6.2B	
D018	8-719-921-54	DIODE MTZJ-6.2B	
D019	8-719-921-54	DIODE MTZJ-6.2B	
D020	8-719-921-54	DIODE MTZJ-6.2B	
D021	8-719-921-54	DIODE MTZJ-6.2B	
D101	8-719-901-33	DIODE 1SS133	
D102	8-719-109-84	DIODE RD5.1ESB1	
D103	8-719-982-26	DIODE MTZJ-33B	
D104	8-719-921-69	DIODE MTZJ-9.1	
D301	8-719-901-33	DIODE 1SS133	
D302	8-719-901-33	DIODE 1SS133	
D303	8-719-901-33	DIODE 1SS133	
D402	8-719-921-69	DIODE MTZJ-9.1	
D410	8-719-921-69	DIODE MTZJ-9.1	
D411	8-719-901-33	DIODE 1SS133	
D412	8-719-901-33	DIODE 1SS133	
D413	8-719-901-33	DIODE 1SS133	
D415	8-719-108-12	DIODE RD9.1EW	
D416	8-719-921-69	DIODE MTZJ-9.1	
D417	8-719-921-69	DIODE MTZJ-9.1	
D418	8-719-921-69	DIODE MTZJ-9.1	
D419	8-719-108-12	DIODE RD9.1EW	
D421	8-719-921-69	DIODE MTZJ-9.1	
D423	8-719-901-33	DIODE 1SS133	
D424	8-719-901-33	DIODE 1SS133	
D425	8-719-901-33	DIODE 1SS133	
D426	8-719-901-33	DIODE 1SS133	
D427	8-719-901-33	DIODE 1SS133	
D501	8-719-109-85	DIODE RD5.1ESB2	
D502	8-719-901-33	DIODE 1SS133	
D503	8-719-901-33	DIODE 1SS133	
D701	8-719-921-54	DIODE MTZJ-6.2B	
D704	8-719-901-33	DIODE 1SS133	
D705	8-719-901-33	DIODE 1SS133	

<FERRITE BEAD>

REF.NO.	PART NO.	DESCRIPTION	REMARK
FB001	1-410-396-41	FERRITE BEAD INDUCTOR	
FB002	1-410-396-41	FERRITE BEAD INDUCTOR	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC001	8-752-847-26	IC CXP85340A-SV4714	
IC002	8-759-191-69	IC CAT24C08P	
IC201	8-759-927-56	IC BA7021	
IC202	8-759-056-91	IC BA7611AN	
IC203	8-759-932-69	IC BU4053BCF-T2	
IC204	8-759-945-48	IC BA7001	
IC301	8-759-089-82	IC BA7790LS	
IC501	8-752-850-55	IC CXP80724-082Q	
IC502	8-759-246-14	IC TA8823N	
IC503	8-759-503-91	IC TL082ACP	
IC504	8-759-822-09	IC LB1641	
IC505	8-759-983-74	IC LM324NS	
IC506	8-759-745-64	IC NJM4560M	
IC507	8-759-983-69	IC LM358PS	
IC701	8-759-192-06	IC MB89121-162	
IC702	8-759-515-58	IC PST572H	
IC703	8-759-510-43	IC PST572C	

<JACK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
J401	1-695-935-11	CONNECTOR (SQUARE TYPE) 21P	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L001	1-408-413-00	INDUCTOR 22UH	
L002	1-414-194-11	INDUCTOR 33UH	
L003	1-414-194-11	INDUCTOR 33UH	
L004	1-414-194-11	INDUCTOR 33UH	
L005	1-414-194-11	INDUCTOR 33UH	
L006	1-414-146-31	INDUCTOR 2.2UH	
L030	1-414-146-31	INDUCTOR 2.2UH	
L102	1-410-680-31	INDUCTOR 330UH	
L103	1-410-645-31	INDUCTOR 100UH	
L104	1-410-645-31	INDUCTOR 100UH	
L201	1-410-521-11	INDUCTOR 100UH	
L301	1-410-521-11	INDUCTOR 100UH	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
L302	1-410-071-11	INDUCTOR 10MMH	
L303	1-410-687-11	INDUCTOR 1.2MMH	
L401	1-408-421-00	INDUCTOR 100UH	
L402	1-408-421-00	INDUCTOR 100UH	
L403	1-410-470-11	INDUCTOR 10UH	
L501	1-408-413-00	INDUCTOR 22UH	
L502	1-410-645-31	INDUCTOR 100UH	
L503	1-414-146-31	INDUCTOR 2.2UH	
L702	1-414-146-31	INDUCTOR 2.2UH	
L720	1-414-146-31	INDUCTOR 2.2UH	

<IC LINK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
PS301⚠	1-532-727-91	LINK, IC 0.25A	
PS501⚠	1-532-679-91	LINK, IC 0.6A	

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q104	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q105	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q201	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q202	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q203	8-729-900-53	TRANSISTOR DTC114EK	
Q204	8-729-900-53	TRANSISTOR DTC114EK	
Q205	8-729-900-53	TRANSISTOR DTC114EK	
Q206	8-729-216-22	TRANSISTOR 2SA1162-G	
Q207	8-729-216-22	TRANSISTOR 2SA1162-G	
Q301	8-729-421-19	TRANSISTOR UN2213	
Q302	8-729-901-46	TRANSISTOR DTA114YK	
Q303	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q	
Q401	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q403	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q404	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q405	8-729-216-22	TRANSISTOR 2SA1162-G	
Q406	8-729-216-22	TRANSISTOR 2SA1162-G	
Q407	8-729-216-22	TRANSISTOR 2SA1162-G	
Q408	8-729-216-22	TRANSISTOR 2SA1162-G	
Q409	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q410	8-729-216-22	TRANSISTOR 2SA1162-G	
Q412	8-729-424-18	TRANSISTOR UN2113	
Q501	8-729-424-12	TRANSISTOR UN2112	
Q503	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q602	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q603	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q701	8-729-424-56	TRANSISTOR UN211L	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR002	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR003	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR004	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR006	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR007	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR008	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR009	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR010	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR011	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR012	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR013	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR014	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR015	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR016	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR017	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR018	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR019	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR020	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR021	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR022	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR024	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR025	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR026	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR027	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR029	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR030	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR031	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR032	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR033	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR034	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR035	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR036	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR037	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR038	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR039	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR040	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR041	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR042	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR043	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR048	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR900	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR901	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR902	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR903	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R001	1-216-027-00	METAL GLAZE 120 5% 1/10W	
R002	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R003	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R004	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R005	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R006	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R007	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R008	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R009	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R010	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R011	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R012	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R013	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R014	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R015	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R016	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R017	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R018	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R019	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R020	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R021	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R022	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R023	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R024	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R025	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R026	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R027	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R028	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R029	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R030	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R031	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R032	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R033	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R034	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R035	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R036	1-216-049-00	METAL GLAZE 1K 5% 1/10W	

MA2

REF.NO.	PART NO.	DESCRIPTION				REMARK
R037	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R038	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R041	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R042	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R043	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R044	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R045	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R046	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R047	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R049	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R050	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R051	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R052	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R053	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R054	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R055	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R056	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R058	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R059	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R060	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R061	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R064	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R065	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R070	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R071	1-216-226-00	METAL GLAZE	15K	5%	1/8W	
R102	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R108	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R109	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R110	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R111	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R112	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R113	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R114	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R115	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R116	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R118	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R119	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R120	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R201	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R202	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R203	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R206	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R207	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R208	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R209	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R210	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R211	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R212	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R214	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R215	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R216	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R217	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R218	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R219	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R222	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R223	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R224	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R225	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R226	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R227	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R228	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R229	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R301	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R303	1-216-689-11	METAL GLAZE	39K	5%	1/10W	
R304	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R305	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R306	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R307	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R308	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R309	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R312	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R313	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R314	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R315	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R316	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R317	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R318	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R319	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R320	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R322	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R323	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R324	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R325	1-249-389-11	CARBON	4.7	5%	1/4W	F
R326	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R327	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R328	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R329	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R330	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R331	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R401	1-216-226-00	METAL GLAZE	15K	5%	1/8W	
R402	1-216-226-00	METAL GLAZE	15K	5%	1/8W	
R403	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R404	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R408	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R410	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R412	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R414	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R415	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R417	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R418	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R419	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R420	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R421	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R422	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R423	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R424	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R426	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R427	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R428	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R429	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R430	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R432	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R433	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R434	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R435	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R436	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R437	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R438	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R439	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R441	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R442	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R443	1-212-861-11	FUSIBLE	15	5%	1/4W	F
R445	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R446	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R448	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R449	1-249-405-11	CARBON	100	5%	1/4W	F

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

MA2

REF.NO.	PART NO.	DESCRIPTION				REMARK
R450	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R451	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R452	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R453	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R454	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R460	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R462	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R463	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R464	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R482	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R483	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R501	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R502	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R503	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R504	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R505	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R506	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R507	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R508	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R509	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R510	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R511	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R512	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R513	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R514	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R515	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R516	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R517	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R518	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R519	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R520	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R521	1-216-103-91	METAL GLAZE	180K	5%	1/10W	
R522	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R523	1-216-689-11	METAL GLAZE	39K	5%	1/10W	
R524	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R525	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R527	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R528	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R529	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R530	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R531	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R532	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R533	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R534	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R535	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R536	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R537	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R538	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R539	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R540	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R541	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R542	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R543	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R544	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R545	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R546	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R547	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R548	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R549	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R550	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R551	1-249-410-11	CARBON	270	5%	1/4W	
R552	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R553	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R554	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R555	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R556	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R557	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R558	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R559	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R559	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R560	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R561	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R562	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R563	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R564	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R565	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R566	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W	
R567	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R568	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R569 ⚠	1-212-950-61	FUSIBLE	4.7	5%	1/2W	F
R570	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R571	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R572	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R574	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R575	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R577	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R578	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R579	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R580	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R581	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R582	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R583	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R584	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R585	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R586	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R588	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R589	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R590	1-249-412-11	CARBON	390	5%	1/4W	
R591	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R601	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R701	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R702	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R703	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R704	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R705	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R706	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R707	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R708	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R709	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R710	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R711	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R712	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R713	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R714	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R715	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R716	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R717	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R718	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R719	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R720	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R721	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R722	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R723	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R724	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R726	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R728	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R730	1-216-113-00	METAL GLAZE	470K	5%	1/10W	

YC2 **RP3**

REF.NO.	PART NO.	DESCRIPTION			REMARK
L016	1-410-117-31	INDUCTOR	0.68MMH		
L018	1-408-419-00	INDUCTOR	68UH		
L019	1-408-421-00	INDUCTOR	100UH		
L020	1-408-609-41	INDUCTOR	33UH		
L023	1-410-435-21	INDUCTOR	220UH		
		<TRANSISTOR>			
Q002	8-729-422-29	TRANSISTOR 2SD601A-S			
Q003	8-729-422-29	TRANSISTOR 2SD601A-S			
Q004	8-729-422-29	TRANSISTOR 2SD601A-S			
Q005	8-729-422-29	TRANSISTOR 2SD601A-S			
Q006	8-729-422-29	TRANSISTOR 2SD601A-S			
Q007	8-729-422-29	TRANSISTOR 2SD601A-S			
Q008	8-729-421-19	TRANSISTOR UN2213			
Q009	8-729-424-18	TRANSISTOR UN2113			
Q011	8-729-422-37	TRANSISTOR 2SB709A-R			
Q012	8-729-422-37	TRANSISTOR 2SB709A-R			
Q013	8-729-421-19	TRANSISTOR UN2213			
Q014	8-729-424-56	TRANSISTOR UN211L			
Q015	8-729-424-18	TRANSISTOR UN2113			
Q016	8-729-422-37	TRANSISTOR 2SB709A-R			
Q017	8-729-422-37	TRANSISTOR 2SB709A-R			
Q018	8-729-422-29	TRANSISTOR 2SD601A-S			
Q020	8-729-422-37	TRANSISTOR 2SB709A-R			
Q033	8-729-421-19	TRANSISTOR UN2213			
Q034	8-729-421-19	TRANSISTOR UN2213			
Q035	8-729-421-19	TRANSISTOR UN2213			
Q111	8-729-421-19	TRANSISTOR UN2213			
Q112	8-729-424-18	TRANSISTOR UN2113			
Q113	8-729-421-19	TRANSISTOR UN2213			
Q115	8-729-421-19	TRANSISTOR UN2213			
		<RESISTOR>			
JR003	1-216-295-00	METAL GLAZE	0	5%	1/10W
R001	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R002	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R003	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R004	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R005	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R006	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R007	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R008	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R009	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R010	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R011	1-216-689-11	METAL GLAZE	39K	5%	1/10W
R012	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R013	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R014	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R015	1-216-041-00	METAL GLAZE	470	5%	1/10W
R016	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R017	1-216-035-00	METAL GLAZE	270	5%	1/10W
R018	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R019	1-216-035-00	METAL GLAZE	270	5%	1/10W
R020	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R022	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R023	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R024	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R025	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R026	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R029	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R030	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R031	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R034	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W

REF.NO.	PART NO.	DESCRIPTION			REMARK
R035	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R036	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R037	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R038	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R039	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R040	1-216-037-00	METAL GLAZE	330	5%	1/10W
R041	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R042	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W
R043	1-216-036-00	METAL GLAZE	300	5%	1/10W
R044	1-216-295-00	METAL GLAZE	0	5%	1/10W
R045	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R046	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R048	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R049	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R050	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R051	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R052	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R053	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R054	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R055	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R057	1-216-044-00	METAL GLAZE	620	5%	1/10W
R058	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R059	1-216-041-00	METAL GLAZE	470	5%	1/10W
R066	1-216-295-00	METAL GLAZE	0	5%	1/10W
R110	1-216-045-00	METAL GLAZE	680	5%	1/10W
R113	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R114	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R115	1-216-045-00	METAL GLAZE	680	5%	1/10W
R116	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R117	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R118	1-216-023-00	METAL GLAZE	82	5%	1/10W
R119	1-216-045-00	METAL GLAZE	680	5%	1/10W
R120	1-216-037-00	METAL GLAZE	330	5%	1/10W
R122	1-216-295-00	METAL GLAZE	0	5%	1/10W
R125	1-216-295-00	METAL GLAZE	0	5%	1/10W
R126	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R127	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R128	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R129	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R131	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R132	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R133	1-216-079-00	METAL GLAZE	18K	5%	1/10W
		<VARIABLE RESISTOR>			
RV002	1-241-630-11	RES, ADJ, CARBON 10K			
RV003	1-241-630-11	RES, ADJ, CARBON 10K			
RV004	1-241-630-11	RES, ADJ, CARBON 10K			
RV005	1-241-630-11	RES, ADJ, CARBON 10K			
RV006	1-241-628-11	RES, ADJ, CARBON 2.2K			
		<CRYSTAL>			
X001	1-579-608-11	VIBRATOR, CRYSTAL			

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*A-1394-557-A RP3 BOARD, COMPLETE
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REF.NO.	PART NO.	DESCRIPTION			REMARK
		<CAPACITOR>			
C435	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C437	1-163-105-00	CERAMIC CHIP	33PF	5%	50V

RP3

REF.NO.	PART NO.	DESCRIPTION			REMARK
C439	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C440	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C441	1-124-925-11	ELECT	2.2MF	20%	50V
C442	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C443	1-126-233-11	ELECT	22MF	20%	25V
C445	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C501	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C502	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C503	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C506	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C507	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C508	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C509	1-124-463-00	ELECT	0.1MF	20%	50V
C510	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C511	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C512	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C513	1-124-589-11	ELECT	47MF	20%	10V
C514	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C516	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C517	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C518	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C519	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C520	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C521	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C523	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C524	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C525	1-124-126-00	ELECT	47MF	20%	10V
C526	1-124-126-00	ELECT	47MF	20%	10V
C527	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C528	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C529	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C530	1-216-295-00	METAL GLAZE	0	5%	1/10W
C531	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C532	1-124-126-00	ELECT	47MF	20%	10V
C534	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C539	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C540	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
		<CONNECTOR>			
CN501	1-691-613-11	CONNECTOR, BOARD TO BOARD 6P			
CN502	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P			
CN503	*1-564-519-11	PLUG, CONNECTOR 4P			
		<DIODE>			
D501	8-719-986-73	DIODE RB441Q			
		<IC>			
IC501	8-759-048-53	IC LA7376-A			
		<COIL>			
L403	1-410-519-11	INDUCTOR	68UH		
L499	1-410-521-11	INDUCTOR	100UH		
L501	1-408-421-00	INDUCTOR	100UH		
L503	1-408-416-00	INDUCTOR	39UH		
L504	1-408-416-00	INDUCTOR	39UH		
L505	1-408-411-00	INDUCTOR	15UH		
L506	1-408-424-00	INDUCTOR	180UH		
L507	1-408-411-00	INDUCTOR	15UH		
L509	1-408-421-00	INDUCTOR	100UH		
L510	1-408-421-00	INDUCTOR	100UH		

REF.NO.	PART NO.	DESCRIPTION			REMARK
		<TRANSISTOR>			
Q404	8-729-422-29	TRANSISTOR 2SD601A-S			
Q406	8-729-422-29	TRANSISTOR 2SD601A-S			
Q407	8-729-422-37	TRANSISTOR 2SB709A-R			
Q408	8-729-422-37	TRANSISTOR 2SB709A-R			
Q409	8-729-422-29	TRANSISTOR 2SD601A-S			
Q410	8-729-422-29	TRANSISTOR 2SD601A-S			
Q501	8-729-422-29	TRANSISTOR 2SD601A-S			
Q502	8-729-422-37	TRANSISTOR 2SB709A-R			
Q503	8-729-422-29	TRANSISTOR 2SD601A-S			
Q506	8-729-421-19	TRANSISTOR UN2213			
Q507	8-729-422-29	TRANSISTOR 2SD601A-S			
Q510	8-729-422-29	TRANSISTOR 2SD601A-S			
Q511	8-729-421-19	TRANSISTOR UN2213			
Q512	8-729-422-29	TRANSISTOR 2SD601A-S			
		<RESISTOR>			
R473	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R474	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R475	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R476	1-216-042-00	METAL GLAZE	510	5%	1/10W
R478	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R479	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R480	1-216-033-00	METAL GLAZE	220	5%	1/10W
R481	1-216-041-00	METAL GLAZE	470	5%	1/10W
R482	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R485	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R486	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R487	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R501	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R502	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W
R503	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R504	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R505	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R506	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R507	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R508	1-216-084-00	METAL GLAZE	30K	5%	1/10W
R509	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R510	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R511	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R512	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R513	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R514	1-216-047-00	METAL GLAZE	820	5%	1/10W
R515	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R516	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R517	1-216-039-00	METAL GLAZE	390	5%	1/10W
R518	1-216-039-00	METAL GLAZE	390	5%	1/10W
R519	1-216-047-00	METAL GLAZE	820	5%	1/10W
R520	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R521	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R522	1-216-043-00	METAL GLAZE	560	5%	1/10W
R523	1-216-045-00	METAL GLAZE	680	5%	1/10W
R524	1-216-041-00	METAL GLAZE	470	5%	1/10W
R525	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R528	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R529	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R533	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R534	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R535	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R536	1-216-046-00	METAL GLAZE	750	5%	1/10W
R537	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W

MA2 VP TK ZD

REF.NO.	PART NO.	DESCRIPTION	REMARK
R733	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R734	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R739	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R740	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R900	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R901	1-216-037-00	METAL GLAZE 330 5% 1/10W	

<VARIABLE RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV301	1-241-767-21	RES, ADJ, CARBON 100K	

<TRANSFORMER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
T301	1-423-414-11	TRANSFORMER, BIAS OSCILLATION	

<TUNER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
TU101	1-693-233-11	TUNER, VIF (BTF-2C404)	

<CRYSTAL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
X501	1-578-774-11	VIBRATOR, CRYSTAL	
X701	1-579-463-11	VIBRATOR, CRYSTAL	

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*A-1347-086-A VP BOARD, COMPLETE (KV-V1410D)

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C901	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C902	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C904	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C906	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C910	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN901	1-573-824-11	CONNECTOR, BOARD TO BOARD 10P	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D901	8-719-901-33	DIODE 1SS133	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC901	8-759-030-60	IC SDA5642	
IC902	8-759-147-30	IC UPD75004-GB-562-3B4	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L941	1-410-509-11	INDUCTOR 10UH	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
R901	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R902	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R903	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R904	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R905	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R906	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R907	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R908	1-216-121-00	METAL GLAZE 1M 5% 1/10W	

REF.NO.	PART NO.	DESCRIPTION	REMARK
R910	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R911	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R912	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R913	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

<CRYSTAL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
X901	1-577-101-11	VIBRATOR, CERAMIC	

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*1-650-181-11 TK BOARD

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN301	1-764-271-31	CONNECTOR, BOARD TO BOARD 9P	
CN302	1-764-272-31	CONNECTOR, BOARD TO BOARD 13P	
CN303	1-506-469-11	PIN, CONNECTOR 4P	
CN304	1-695-388-21	PIN, CONNECTOR (PC BOARD) 27P	

<VARIABLE RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV302	1-241-123-11	RES, ADJ, CARBON 47K	

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*A-1390-426-A ZD BOARD, COMPLETE

4-382-854-11 SCREW (M3X10), P, SW (+)

<CAPACTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C901	1-124-477-11	ELECT 47MF 20% 25V	
C902	1-124-477-11	ELECT 47MF 20% 25V	
C903	1-124-480-11	ELECT 470MF 20% 25V	
C904	1-128-546-81	ELECT 10000MF 20% 10V	
C905	1-124-477-11	ELECT 47MF 20% 25V	
C906	1-124-477-11	ELECT 47MF 20% 25V	
C907	1-124-477-11	ELECT 47MF 20% 25V	
C908	1-124-477-11	ELECT 47MF 20% 25V	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN901	*1-564-509-11	PLUG, CONNECTOR 6P	
CN902	*1-564-512-11	PLUG, CONNECTOR 9P	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC901	8-759-148-79	IC UPC2406HF	
IC902	8-749-920-43	IC SI-3050CA	
IC903	8-759-518-68	IC PQ12RF21	
IC904	8-759-198-03	IC PQ09RF21	
IC905	8-749-921-21	IC SI-3120C	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
R901	1-249-409-11	CARBON 220 5% 1/4W	
R902	1-249-409-11	CARBON 220 5% 1/4W	
R903	1-249-409-11	CARBON 220 5% 1/4W	

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YC2

*A-1394-504-A YC2 BOARD, COMPLETE

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C001	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C002	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C003	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C004	1-163-137-00	CERAMIC CHIP 680PF 5% 50V	
C005	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C006	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C007	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C008	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C009	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C010	1-124-126-00	ELECT 47MF 20% 10V	
C011	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C012	1-124-907-11	ELECT 10MF 20% 50V	
C013	1-124-907-11	ELECT 10MF 20% 50V	
C014	1-164-005-11	CERAMIC CHIP 0.47MF 16V	
C015	1-124-907-11	ELECT 10MF 20% 50V	
C017	1-124-126-00	ELECT 47MF 20% 10V	
C018	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C019	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C020	1-124-903-11	ELECT 1MF 20% 50V	
C021	1-124-903-11	ELECT 1MF 20% 50V	
C022	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C023	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
C025	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C027	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C029	1-163-123-00	CERAMIC CHIP 180PF 5% 50V	
C030	1-163-107-00	CERAMIC CHIP 39PF 5% 50V	
C031	1-163-111-00	CERAMIC CHIP 56PF 5% 50V	
C032	1-124-277-11	ELECT 4.7MF 20% 35V	
C033	1-163-139-00	CERAMIC CHIP 820PF 5% 50V	
C034	1-163-088-00	CERAMIC CHIP 5PF 0.25PF 50V	
C035	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C036	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C037	1-124-907-11	ELECT 10MF 20% 50V	
C038	1-124-907-11	ELECT 10MF 20% 50V	
C039	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C040	1-124-252-00	ELECT 0.33MF 20% 50V	
C041	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C042	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C043	1-124-903-11	ELECT 1MF 20% 50V	
C044	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C045	1-124-903-11	ELECT 1MF 20% 50V	
C047	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C048	1-163-114-00	CERAMIC CHIP 75PF 5% 50V	
C049	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C050	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C051	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C052	1-124-927-11	ELECT 4.7MF 20% 50V	
C053	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C057	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C058	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C059	1-124-477-11	ELECT 47MF 20% 16V	
C060	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C061	1-124-903-11	ELECT 1MF 20% 50V	
C062	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C063	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C064	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C065	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C066	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C067	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	

REF.NO.	PART NO.	DESCRIPTION	REMARK
C090	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C091	1-124-126-00	ELECT 47MF 20% 10V	
C092	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C093	1-124-126-00	ELECT 47MF 20% 10V	
C094	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C096	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C097	1-124-126-00	ELECT 47MF 20% 10V	
C098	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C100	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C101	1-124-126-00	ELECT 47MF 20% 10V	
C104	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C105	1-163-092-00	CERAMIC CHIP 9PF 0.25PF 50V	
C111	1-163-107-00	CERAMIC CHIP 39PF 5% 50V	
C113	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C114	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C118	1-163-089-00	CERAMIC CHIP 6PF 0.25PF 50V	
C119	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C130	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C131	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C132	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN001	1-573-828-11	CONNECTOR, BOARD TO BOARD 14P	
CN002	1-573-828-11	CONNECTOR, BOARD TO BOARD 14P	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D001	8-719-901-33	DIODE 1SS133	
D002	8-719-901-33	DIODE 1SS133	
D003	8-719-901-33	DIODE 1SS133	
D004	8-719-901-33	DIODE 1SS133	
D006	8-719-901-33	DIODE 1SS133	
D007	8-719-901-33	DIODE 1SS133	
D008	8-719-901-33	DIODE 1SS133	
D011	8-719-901-33	DIODE 1SS133	
D012	8-719-901-33	DIODE 1SS133	
D013	8-719-901-33	DIODE 1SS133	

<DELAY LINE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
DL001	1-415-728-31	DELAY LINE, 2H (ULTRASONIC)	
DL002	1-415-856-11	DELAY LINE, ULTRASONIC GLASS	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC001	8-759-046-76	IC LA7396	
IC002	8-759-821-51	IC LC8992	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L001	1-410-521-11	INDUCTOR 100UH	
L002	1-408-411-00	INDUCTOR 15UH	
L003	1-408-411-00	INDUCTOR 15UH	
L005	1-408-422-00	INDUCTOR 120UH	
L006	1-408-416-00	INDUCTOR 39UH	
L008	1-408-403-00	INDUCTOR 3.3UH	
L009	1-408-421-00	INDUCTOR 100UH	
L010	1-408-421-00	INDUCTOR 100UH	
L011	1-410-515-11	INDUCTOR 33UH	
L012	1-410-517-11	INDUCTOR 47UH	
L013	1-410-437-11	INDUCTOR 330UH	
L014	1-410-439-11	INDUCTOR 470UH	
L015	1-408-421-00	INDUCTOR 100UH	

RP3

REF.NO.	PART NO.	DESCRIPTION	REMARK
R538	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R539	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R545	1-216-044-00	METAL GLAZE 620 5% 1/10W	
R546	1-216-295-00	METAL GLAZE 0 5% 1/10W	

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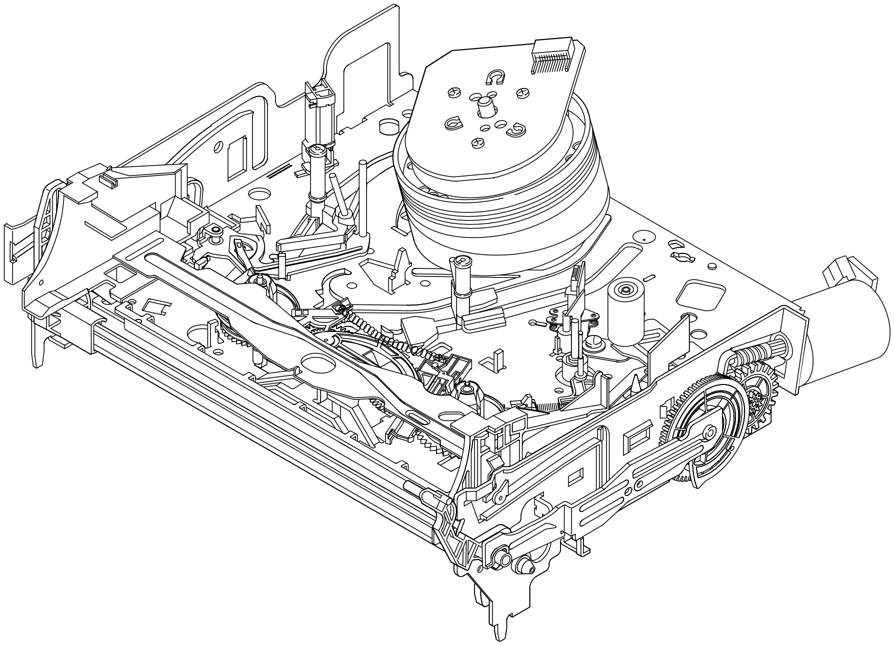
Sony Corporation
TV Group

VHS MECHANICAL ADJUSTMENT MANUAL VII

TS-10 MECHANISM

Please use this manual with the service manual.



VHS MECHANISM DECK

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1. Disassembly and Reassembly

1-1 Deck Parts Locations

1-1-1 Top View

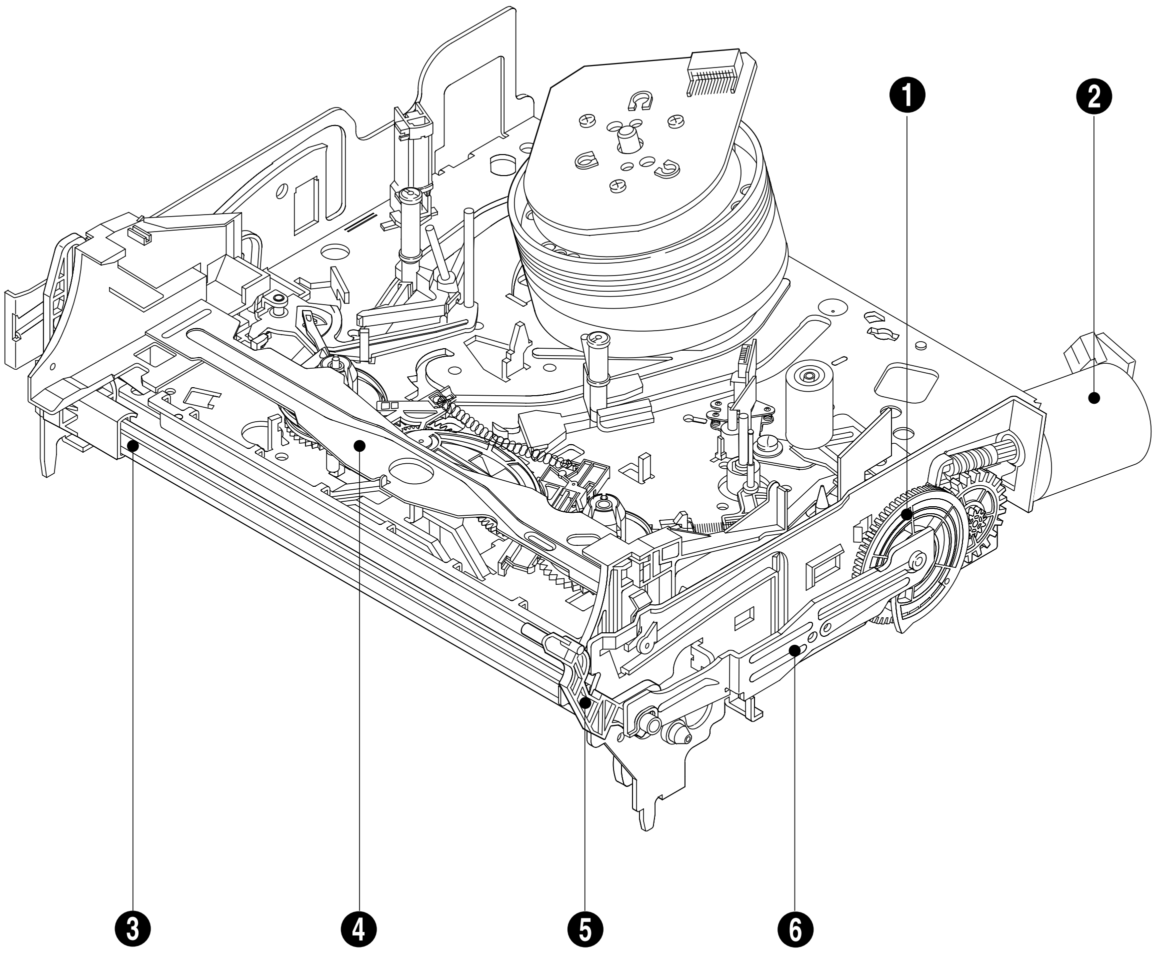


Fig. 1-1 Top parts Location-1

❶ GEAR FL CAM
❷ MOTOR LOADING ASS’Y
❸ LEVER FL ARM ASS’Y
❹ HOLDER FL CASSETTE ASS’Y
❺ LEVER FL DOOR
❻ SLIDER FL DRIVE

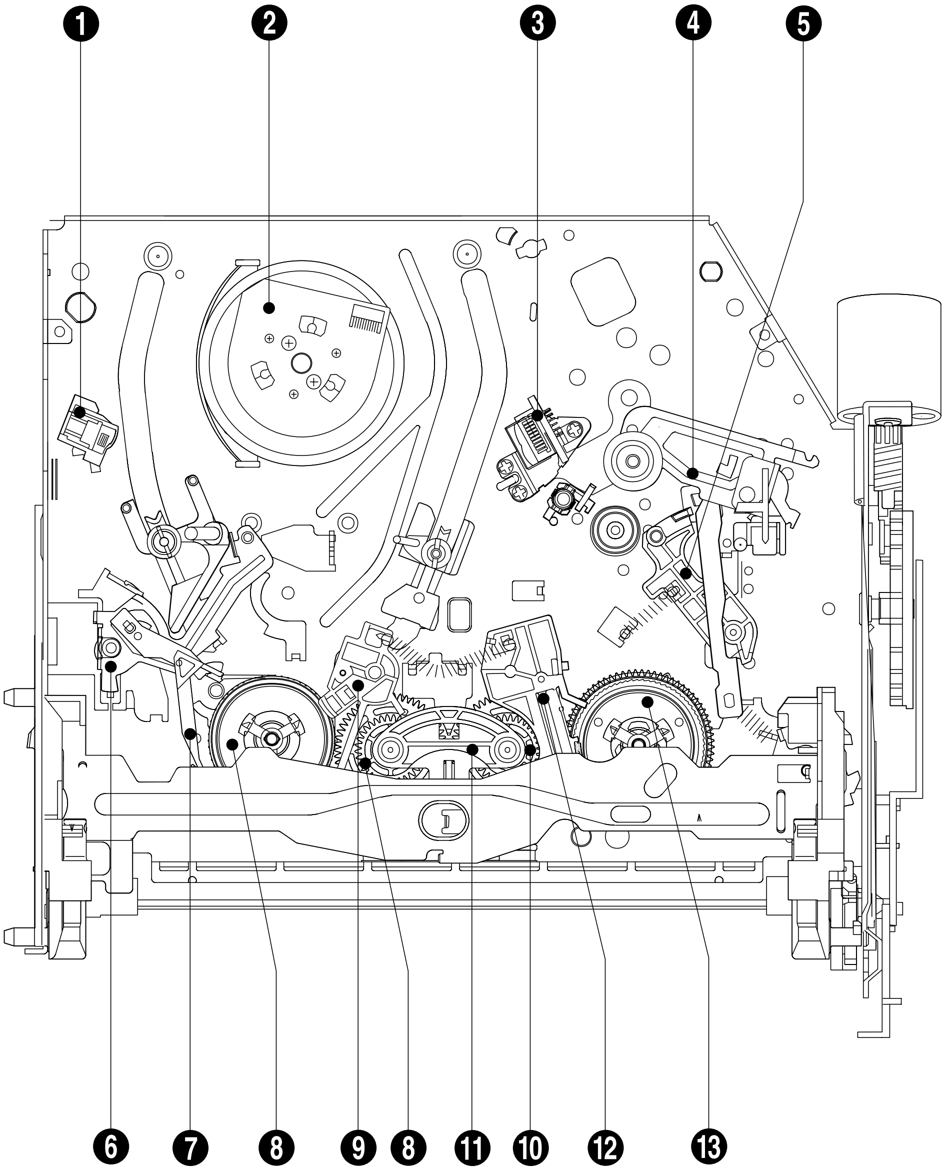


Fig. 1-2 Top Parts Location-2

❶ FE HEAD
❷ CYLINDER ASS'Y
❸ ACE HEAD ASS'Y
❹ LEVER UNIT PINCH ASS'Y
❺ LEVER #9 GUIDE ASS'Y
❻ LEVER TENSION ASS'Y
❼ BAND BRAKE ASS'Y
❽ DISK S REEL
❾ LEVER S BRAKE ASS'Y
❿ GEAR IDLE
⓫ LEVER IDLE
⓬ LEVER T BRAKE ASS'Y
⓭ DISK T REEL

1-1-2 Bottom View

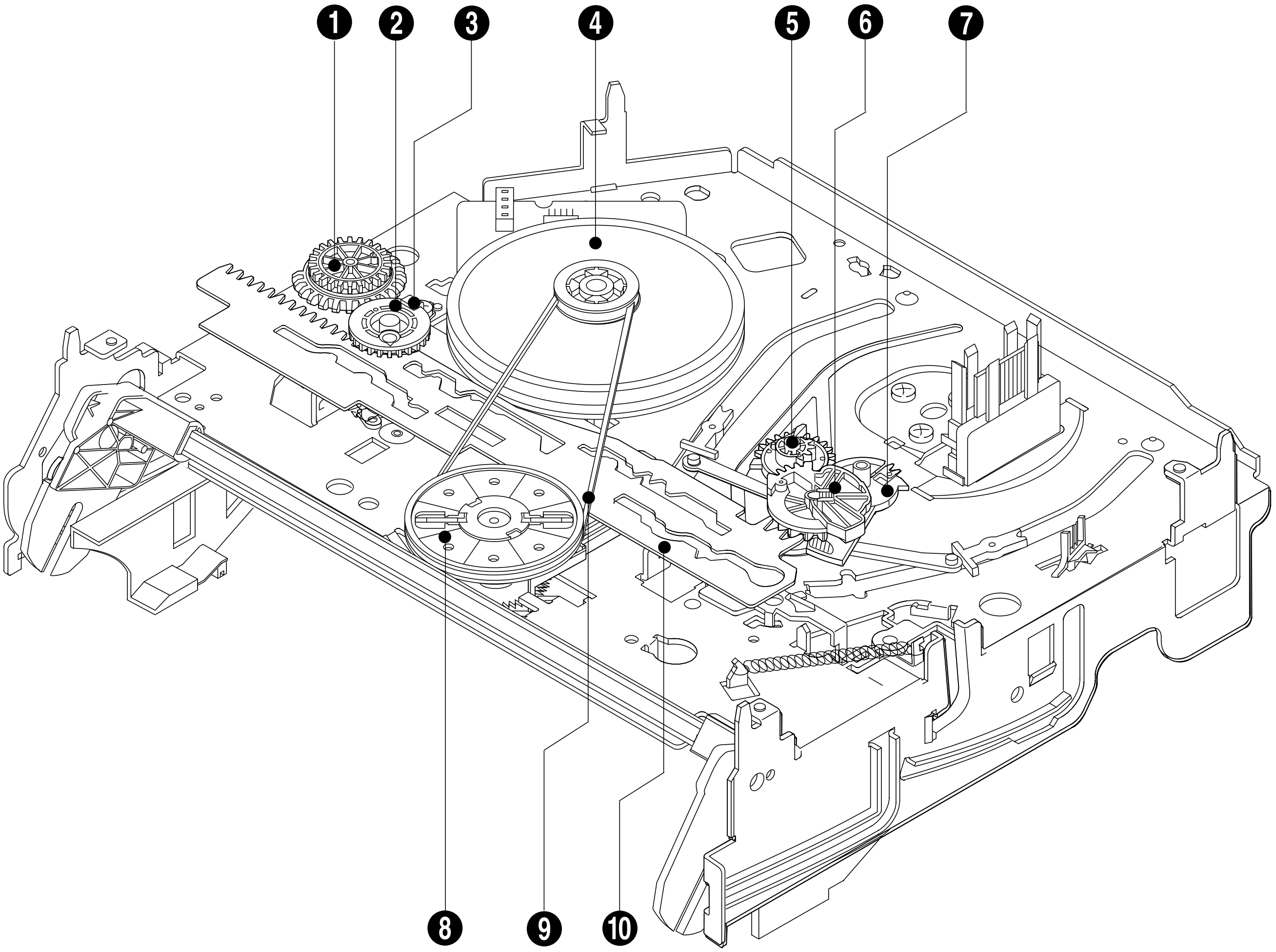


Fig. 1-3 Bottom Parts Location

❶ GEAR JOINT 1
❷ GEAR JOINT 2
❸ BRACKET GEAR
❹ MOTOR CAPSTAN ASS'Y
❺ LEVER T LOAD ASS'Y
❻ GEAR LOADING DRIVE
❼ LEVER S LOAD ASS'Y
❽ HOLDER CLUTCH ASS'Y
❾ BELT PULLEY
❿ SLIDER CAM

1-2 Main Deck

1-2-1 Lever FL Door Removal

1) Push the Holder FL Cassette Ass'y ❶ about 20mm in the direction of arrow “A”.
2) Rotate the Lever FL Door ❷ in the direction of arrow “B”.
3) Release the Hook ❸ and Remove the Lever FL Door ❷ in the direction of arrow “C”.

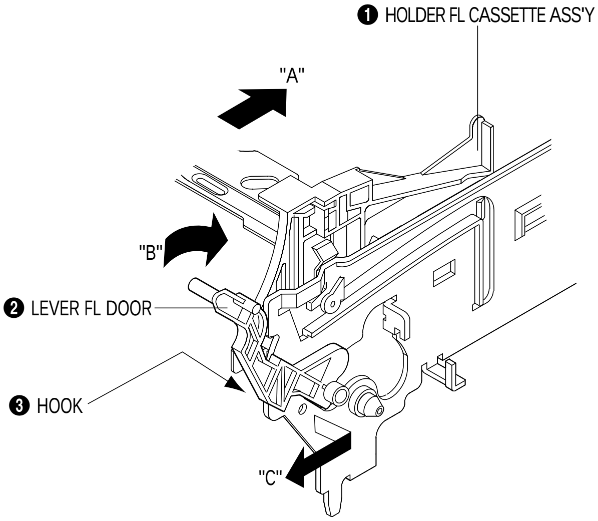

❶ HOLDER FL CASSETTE ASS'Y
"A"
"B"
❷ LEVER FL DOOR
❸ HOOK
"C"

Fig. 1-4 Lever FL Door Removal

1-2-2 Holder FL Cassette Ass’y Removal

1) Pull the Holder FL Cassette Ass'y ❶ to the eject position.
2) Pull the Holder FL Cassette Ass'y ❶ as grasping the Holder FL Cassette Ass'y ❶ and Lever FL Cassette-R ❷ in the same time to release hooking from Main Base until the Boss [A] of Holder FL Cassette Ass'y ❶ is taken out from the Rail [B].
3) Lift the Holder FL Cassette Ass'y ❶, in this time, you have to grasp the Lever FL Cassette-R ❷ Continuously until the Holder FL Cassette Ass'y ❶ is taken out completely.

Note : Be sure to insert Lever FL Cassette-R ❷ in the direction of “A” to prevent separation and breakage of the Lever FL Cassette-R ❷ at disassembling and reassembling.

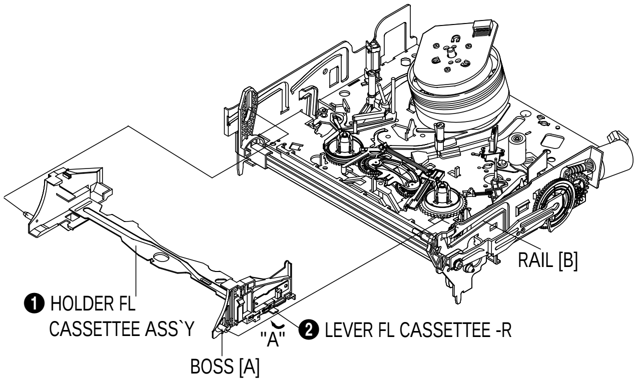

RAIL [B]
❶ HOLDER FL CASSETTEE ASS`Y
"A"
❷ LEVER FL CASSETTEE -R
BOSS [A]

Fig. 1-5 Holder FL Cassette Ass’y Removal

1-2-3 Slider FL Drive, Gear FL Cam Removal

1) Pull the Slider FL Drive ❶ to the front direction.
2) Remove the Slider FL Drive ❶ in the direction of arrow. (Refer to Fig. 1-6)
3) Remove the Gear FL cam ❷.

Note : When reinstalling be sure to reassemble Slider FL drive ❶ after you insert the Boss of Lever FL ARM-R in Groove of Slider Fl drive ❶.

Assembly : Align the Gear FL Cam ❶ with the Gear worm wheel Post as shown drawing.
(Refer to Timing point)

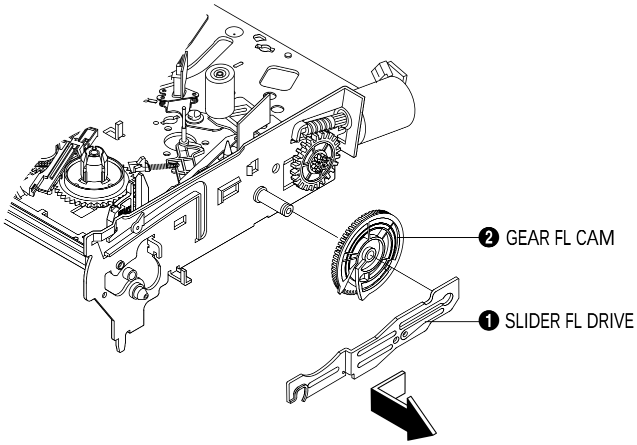

❷ GEAR FL CAM
❶ SLIDER FL DRIVE

Fig. 1-6 Slider FL Drive Removal

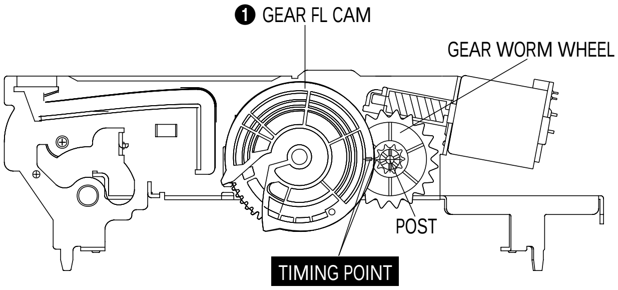

❶ GEAR FL CAM
GEAR WORM WHEEL
POST
TIMING POINT

Fig. 1-7 Gear FL Cam, Gear Worm

1-2-4 Lever FL Arm Ass’y Removal

1) Push the hole “A” in the direction of arrow “B” use the pin.(about Dia.2.5)
2) Pull out the Lever FL Arm Ass'y ❶ from the Boss of Main Base.
3) Remove the Lever FL Arm Ass'y ❶ in the direction of arrow “C”.

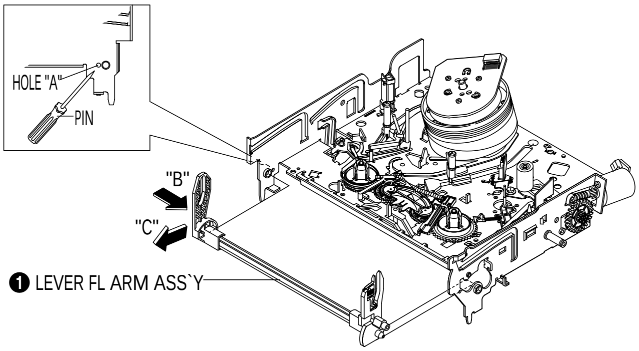

HOLE "A"
PIN
"B"
"C"
❶ LEVER FL ARM ASS`Y

Fig. 1-8 Lever FL Arm Ass’y Removal

1-2-5 Gear Worm Wheel Removal

1) Remove the Gear Worm wheel ❶.

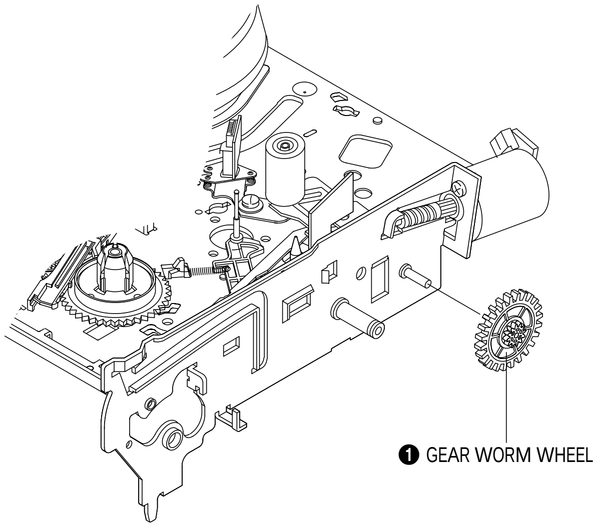

❶ GEAR WORM WHEEL

Fig. 1-9 Gear Worm Wheel Removal

1-2-6 Motor Loading Ass'y Removal

1) Remove the screw ❶.
2) Remove the Motor Loading Ass'y ❷.

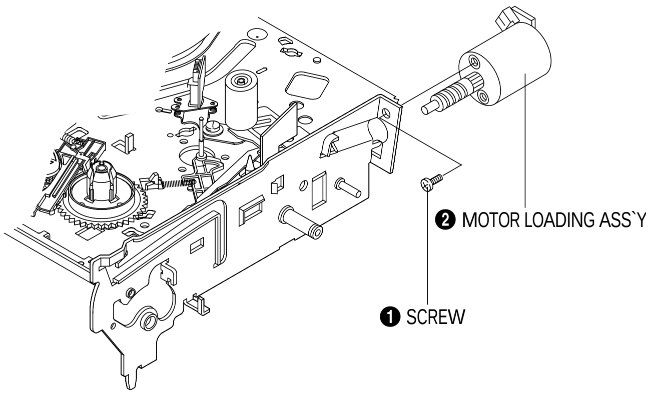

❷ MOTOR LOADING ASS`Y
❶ SCREW

Fig. 1-10 Motor Loading Ass'y Removal

1-2-7 Bracket Gear, Gear Joint 2, 1 Removal

1) Remove the SCREW ❶.
2) Remove the Bracket Gear ❷.
3) Remove the Gear Joint 2 ❸.
4) Remove the Gear Joint 1 ❹.

Assembly :

1) Be sure to align dot mark of Gear Joint 1 ❶ with dot mark of Gear Joint 2 ❷ as shown Fig 1-12. (Refer to Timing point1)
2) Confirm the Timing Point 2 of the Gear Joint 2 ❷ and Slider Cam ❸.

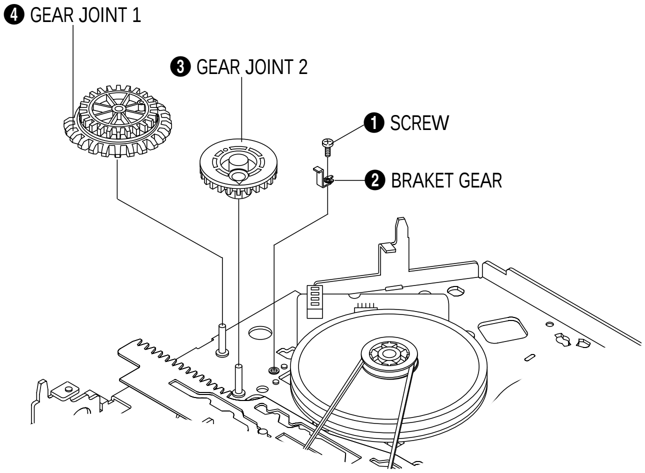

❹ GEAR JOINT 1
❸ GEAR JOINT 2
❶ SCREW
❷ BRAKET GEAR

Fig. 1-11 Bracket Gear, Gear Joint 1,2 Removal

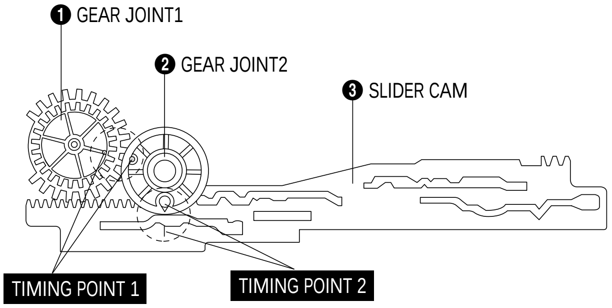

❶ GEAR JOINT1
❷ GEAR JOINT2
❸ SLIDER CAM
TIMING POINT 1
TIMING POINT 2

Fig. 1-12 Gear Joint 1,2 Assembly

1-2-8 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Removal

1) Remove the Belt Pulley. (Refer to Fig. 1-30)
2) Remove the Gear Loading Drive ❶ after releasing Hook [A] in the direction arrow as shown in detail drawing.
3) Remove the Slider Cam ❷.
4) Remove the Lever Load S ❸, Link Load S ❺ & Lever Load T ❹, Link Load T ❻.

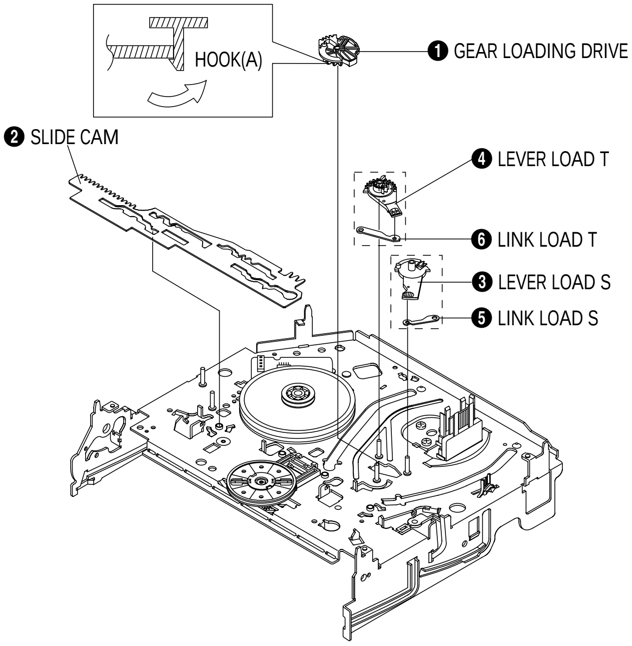

HOOK(A)
❶ GEAR LOADING DRIVE
❷ SLIDE CAM
❹ LEVER LOAD T
❻ LINK LOAD T
❸ LEVER LOAD S
❺ LINK LOAD S

Fig. 1-13 Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y Removal

1-2-9 Gear Loading Drive, Slider Cam, Lever Load S, T Ass’y Assembly

1) When reinstalling, be sure to align dot of Lever Load T Ass'y ❶ with dot of Lever Load S Ass'y ❷ as shown in drawing, (Refer to Timing Point 1).
2) Insert the Pin A,B,C,D into the Slider Cam ❸ hole,
3) Be sure to align dot of Lever Load T ❶ and dot of Gear Loading Drive ❹, (Refer to Timing Point 2).
4) Aline dot of Gear Loading drive ❹ with mark of Slider Cam ❸ as shown in drawing(Refer to Timing Point 3).

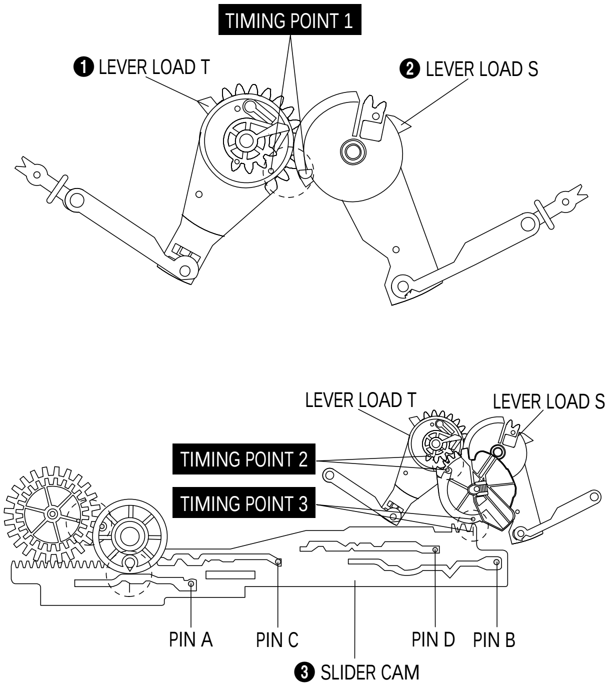

TIMING POINT 1
❶ LEVER LOAD T
❷ LEVER LOAD S
LEVER LOAD T
LEVER LOAD S
TIMING POINT 2
TIMING POINT 3
PIN A
PIN C
PIN D
PIN B
❸ SLIDER CAM

Fig. 1-14 Gear Loading Drive, Slider Cam,
Lever Load S, T Ass’y Assembly

1-2-10 Lever Pinch Drive, Lever Tension Drive Removal

1) Remove the Lever Pinch Drive ❶, Lever Tension Drive ❷.

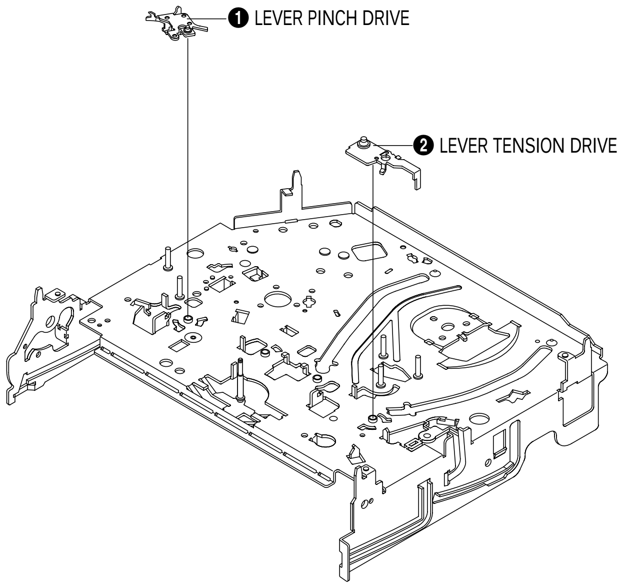

❶ LEVER PINCH DRIVE
❷ LEVER TENSION DRIVE

Fig. 1-15 Lever Pinch Drive,
Lever Tension Drive Removal

1-2-11 Lever Tension Ass’y, Band Brake Ass’y Removal

1) Remove the Lever Brake S Ass'y (Refer to Fig 1-17).
2) Remove the Spring Tension Lever ❶.
3) Rotate stopper of Main Base in the direction of arrow “A”.
4) Lift the Lever Tension Ass'y ❷ & Band brake Ass'y ❸.

Note :
1) When replacing the Lever Tension Ass'y ❷, be sure to apply Grease on the post,
2) Take care not to touch stain on the felt side, and not to be folder and broken Band brake Ass'y
3) After Lever Tension Ass'y seated, Rotate stopper of Main Base to the Mark[B].

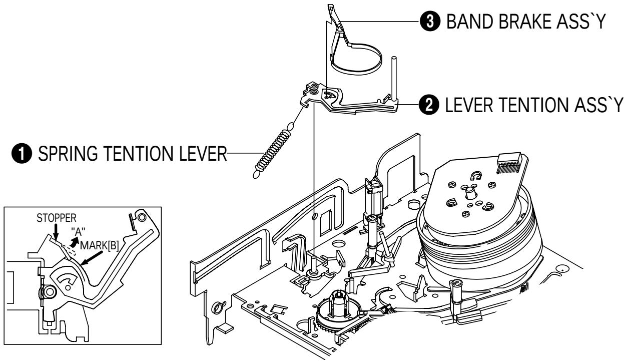

❸ BAND BRAKE ASS`Y
❷ LEVER TENTION ASS`Y
❶ SPRING TENTION LEVER
STOPPER
"A"
MARK[B]

Fig. 1-16 Lever Tension Ass’y, Band Brake Ass’y Removal

1-2-12 Lever Brake S, T Ass’y Removal

1) Release the Hook [A] and the Hook [B], [C] in the direction of arrow as shown in Fig 1-17.
2) Lift the Lever S, T Brake Ass'y ❶, ❷ with spring brake ❸.

Assembly :
1)Assembly the Lever S Brake Ass'y ❶ on the Main Base.
2)Assembly the Lever T Brake Ass'y ❷ with spring brake ❸.

Note : Take extreme care not to be folded and transformed Spring Brake at removing or reinstalling.

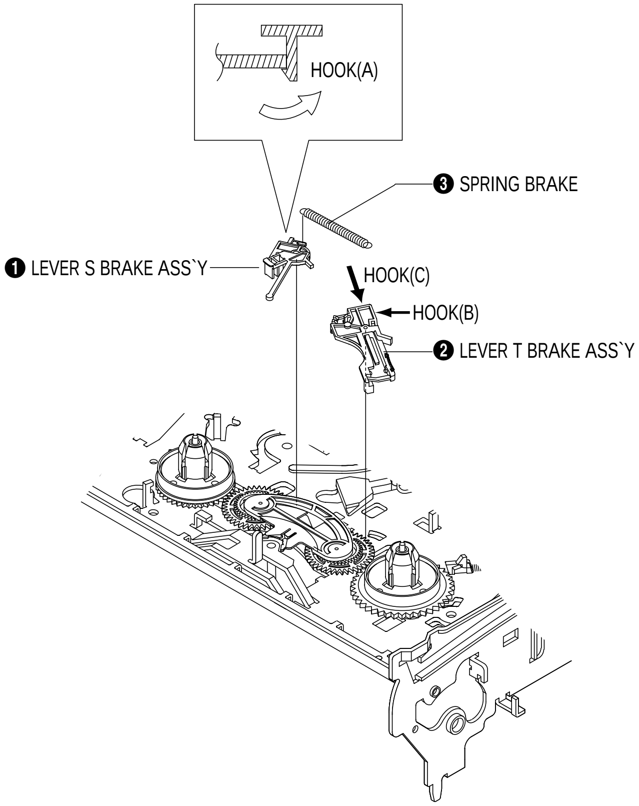

HOOK(A)
❸ SPRING BRAKE
❶ LEVER S BRAKE ASS`Y
HOOK(C)
HOOK(B)
❷ LEVER T BRAKE ASS`Y

Fig. 1-17 Lever Brake S, T Ass’y Removal

1-2-13 Gear Idle Ass’y Removal

1) Push the Lever Idle ❶ in the direction of arrow “A”, “B”.
2) Lift the Lever Idle ❶.

Assembly :
1) Apply oil in two Bosses of Lever Idle ❶.
2) Assemble the Gear Idle ❷ with the Lever Idle ❶.

Note : When replacing the Gear Idle ❷, be sure to add oil in the boss of Lever Idle ❶.

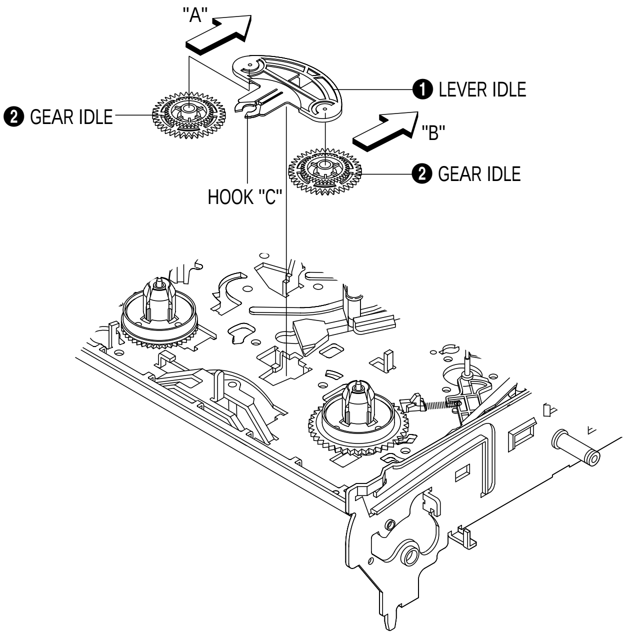

"A"
❶ LEVER IDLE
❷ GEAR IDLE
"B"
❷ GEAR IDLE
HOOK "C"

Fig. 1-18 Gear Idle Ass’y Removal

1-2-14 Disk S, T Reel Removal

1) Lift the Disk S, T Reel ❶, ❷.

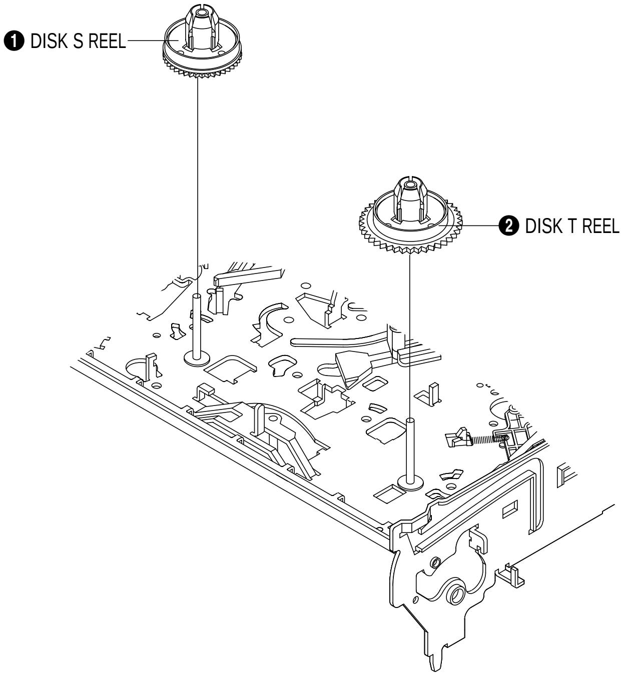

❶ DISK S REEL
❷ DISK T REEL

Fig. 1-19 Disk S, T Reel Removal

1-2-15 Holder Clutch Ass’y Removal

1) Remove the Washer Slit ❶.
2) Lift the Holder Clutch Ass’y ❷.

Note : When you reinstall Holder Clutch Ass'y
1) Check the condition of spring as shown in detail A.
2) Don't push Holder Clutch Ass'y down with excessive force Just insert Holder Clutch Ass'y into post center with dead force and Rotate it smoothly.
   Be sure to confirm that spring is in the slit of Gear Center Ass'y as shown in detail B.

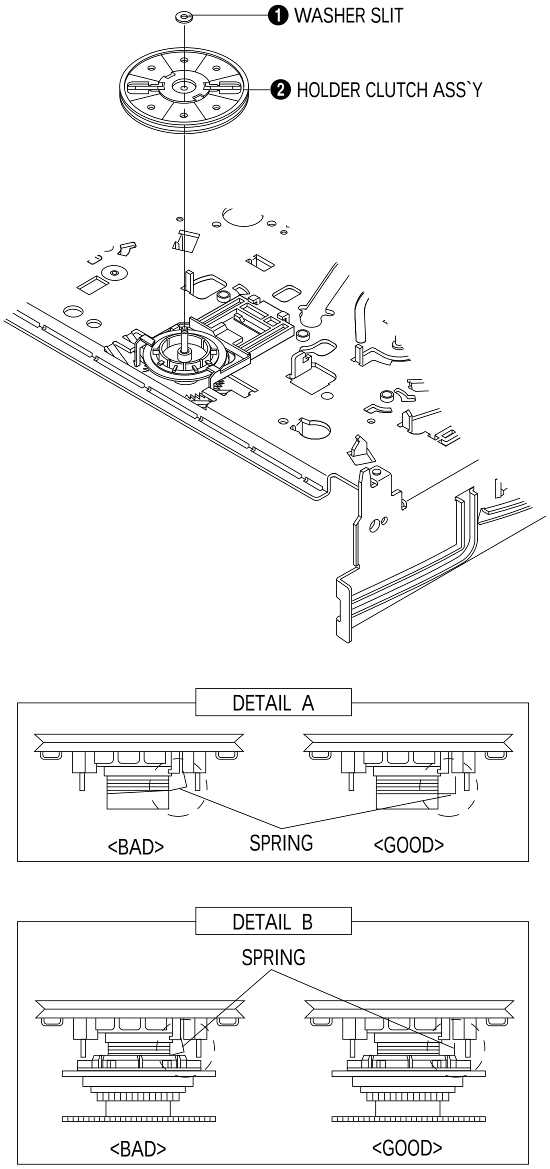

❶ WASHER SLIT
❷ HOLDER CLUTCH ASS`Y
DETAIL A
<BAD>
SPRING
<GOOD>
DETAIL B
SPRING
<BAD>
<GOOD>

Fig. 1-20 Holder Clutch Ass’y Removal

1-2-16 Lever Up Down Ass’y, Gear Center Ass’y Removal

1) Remove the 2 hooks in the direction of arrow as shown Fig. 1-21 and lift the Lever Up Down Ass’y ❶.
2) Lift the Gear Center Ass’y ❷.

Assembly :
1) Insert the Lever Up Down Ass'y ❶ in the rectangular holes on Main Base as shown in Fig 1-22.
2) Lift the Lever Up Down Ass'y ❶ about 35 degree.(Refer to Fig 1-22)
3) Insert Ring of the Gear Center Ass'y ❷ in the Guide of the Lever Up Down Ass'y ❶.
4) Insert the Gear Center Ass'y ❷ in the post on Main Base.
5) Push down the Lever Up Down Ass'y ❶ for locking of the Hook.

Note :
1) Take care not to separate and sentence does not mark sense.
2) Be sure to confirm that Ring of the Gear Center Ass'y ❷ is in the Guide of the Lever Up Down Ass'y ❶ after finishing assembly of Lever Up

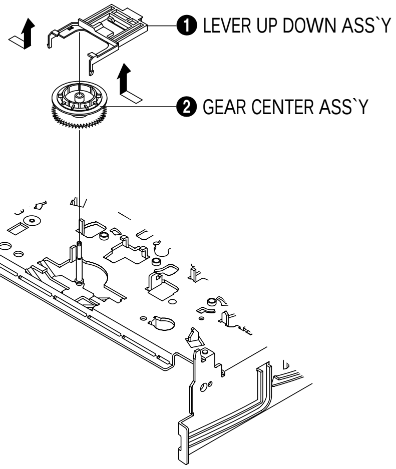

❶ LEVER UP DOWN ASS`Y
❷ GEAR CENTER ASS`Y

Fig. 1-21 Lever Up Down Ass’y Removal

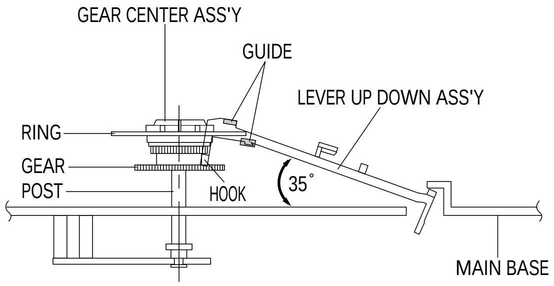

GEAR CENTER ASS'Y
GUIDE
LEVER UP DOWN ASS'Y
RING
GEAR
POST
HOOK
35˚
MAIN BASE

Fig. 1-22 Lever Up Down Ass’y Removal

1-2-17 Guide Cassette Door Removal

1) Lift the Hook [A].
2) Rotate the Guide Cassette Door ❶ in the direction of arrow.

Note : After reinstalling the Guide Cassette Door ❶ sure the Hook [A].

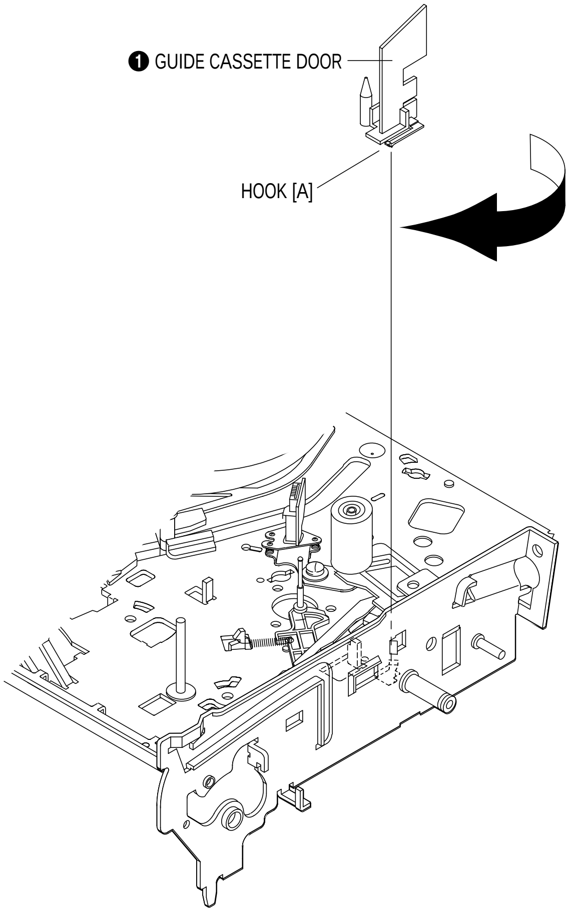

❶ GUIDE CASSETTE DOOR
HOOK [A]

Fig. 1-23 Guide Cassette Door Removal

1-2-18 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

1) Lift the Unit Pinch Ass'y ❶.
2) Remove the Plate Joint ❷ from Lever Pinch Drive.
3) Remove the Spring Pinch Drive ❸.

Note :
1) Take extreme care not to touch the grease on the Roller Pinch.
2) When reinstalling, be sure to apply grease on the post pinch roller.

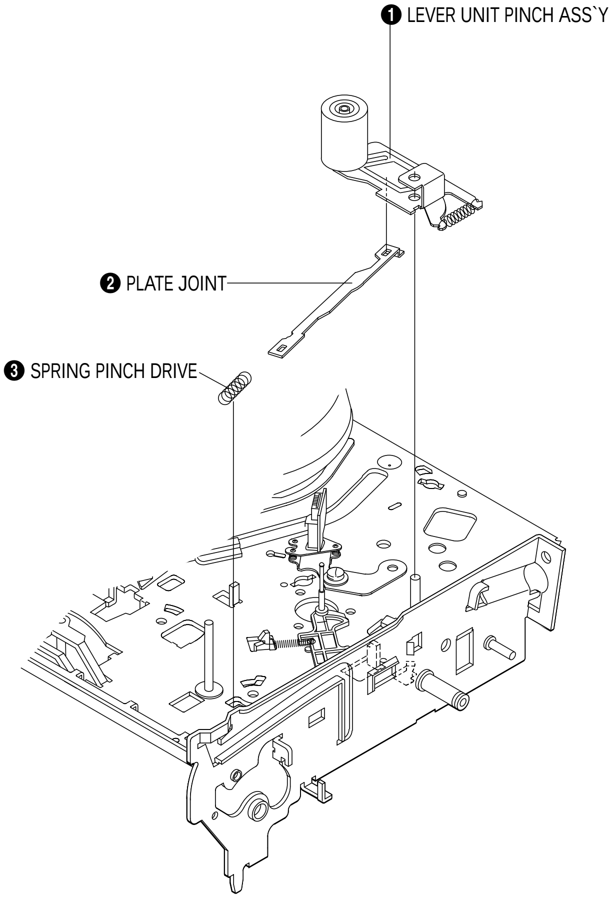

❶ LEVER UNIT PINCH ASS`Y
❷ PLATE JOINT
❸ SPRING PINCH DRIVE

Fig. 1-24 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

1-2-19 Lever #9 Guide Ass’y Removal

1) Remove the Spring #9 Guide ❶.
2) Lift the Spring #9 Guide Ass’y ❷ in the direction of arrow “A”.

Note :
1) Take extreme care not to get grease on the tape Guide Post.
2) After reinstalling, check the bottom side of the Post #9 Guide to the top side of Main Base.

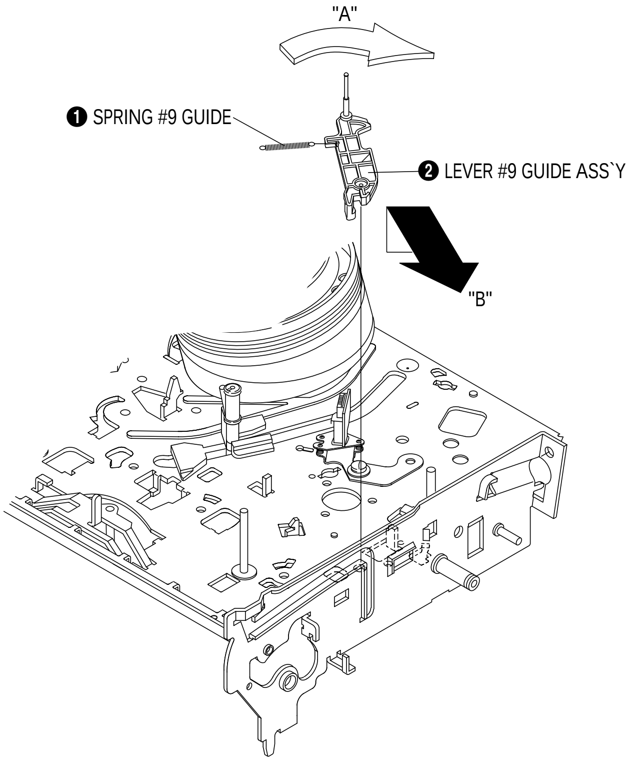

"A"
❶ SPRING #9 GUIDE
❷ LEVER #9 GUIDE ASS`Y
"B"

Fig. 1-25 Lever #9 Guide Ass’y Removal

1-2-20 FE Head Removal

1) Remove the screw ❶.
2) Lift the FE Head ❷.

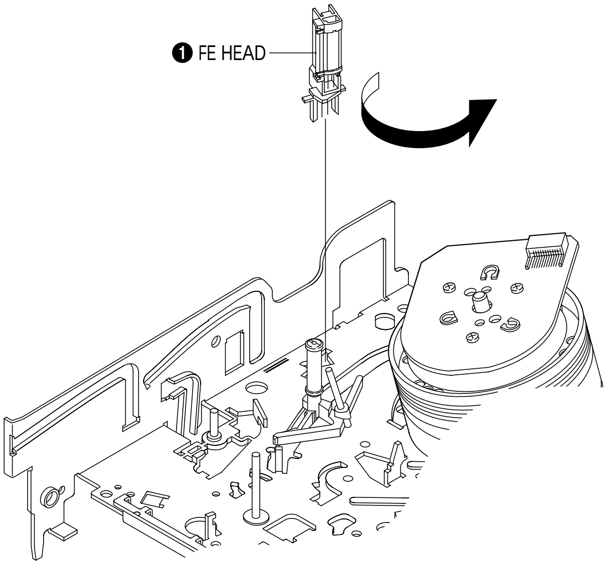


Fig. 1-26 FE Head Removal

1-2-21 ACE Head Removal

1) Pull out the FPC from connector of ACE Head Ass’y ❷.
2) Remove the screw ❶.
3) Lift the ACE Head Ass’y ❷.

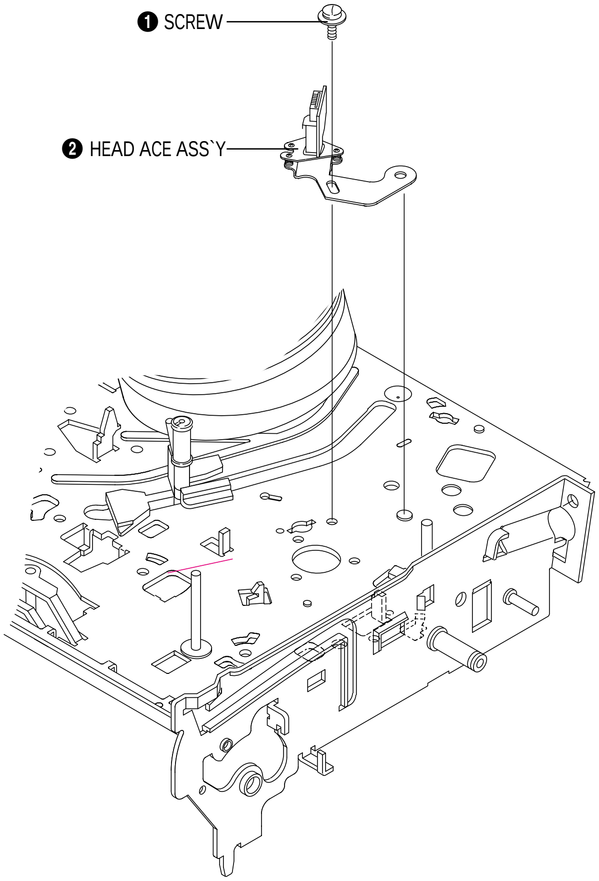

❶ SCREW
❷ HEAD ACE ASS`Y

Fig. 1-27 ACE Head Removal

1-2-22 Slider S, T Ass’y Removal

1) Move the Slider S, T Ass’y ❶, ❷ to slot, and then lift it to remove. (Refer to arrow)

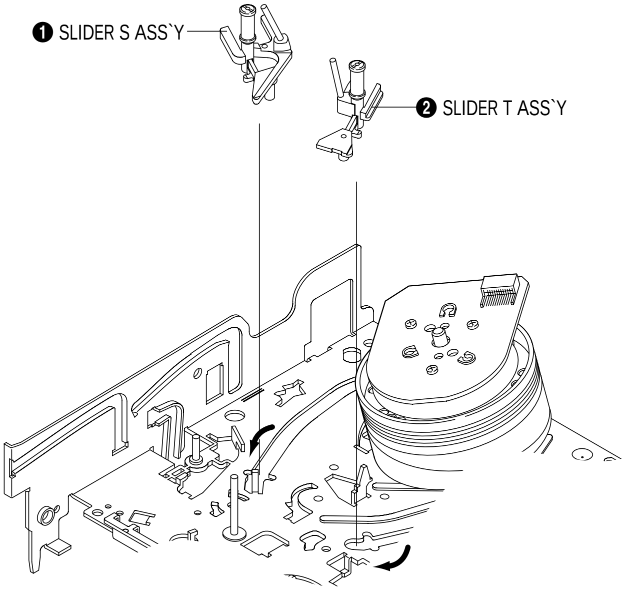

❶ SLIDER S ASS`Y
❷ SLIDER T ASS`Y

Fig. 1-28 Slider S, T Ass’y Removal

1-2-23 Plate Ground Deck, Cylinder Ass’y Removal

1) Remove the 3 Screws ❶.
2) Lift the Plate Ground Deck ❷.
3) Lift the Cylinder Ass’y ❸.

Assembly :
1) Match the 3 holes in the bottom of Cylinder ass'y ❸ to the 3 holes of Main Base as attending not to drop or knock the Cylinder ass'y ❸.
2) Tighten the 1 Screw ❶.
3) Match the Plate Ground Deck ❷ to the Hole of Base Main.
4) Tighten the other 2 Screws ❶.

Note :
1) Take care not to touch the Cylinder Ass'y ❸ and the tape guide post at reinstalling.
2) When reinstalling, Don't push down too much on Screw Driver.

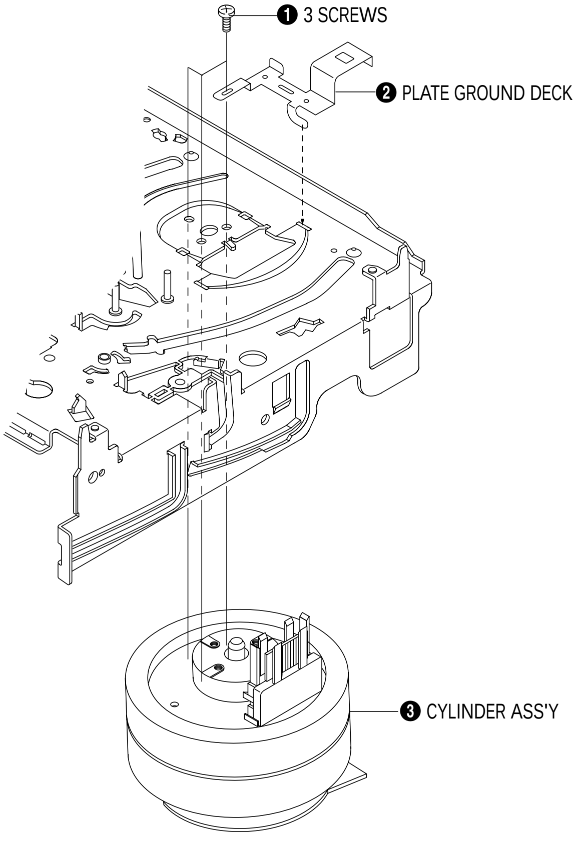

❶ 3 SCREWS
❷ PLATE GROUND DECK
❸ CYLINDER ASS'Y

Fig. 1-29 Plate Ground Deck, Cylinder Ass’y Removal

1-2-24 Belt Pulley Removal

1) Remove the Belt Pulley ❶.

Note : Take extreme care not to get grease on Belt Pulley ❶ at assembling or reassembling.

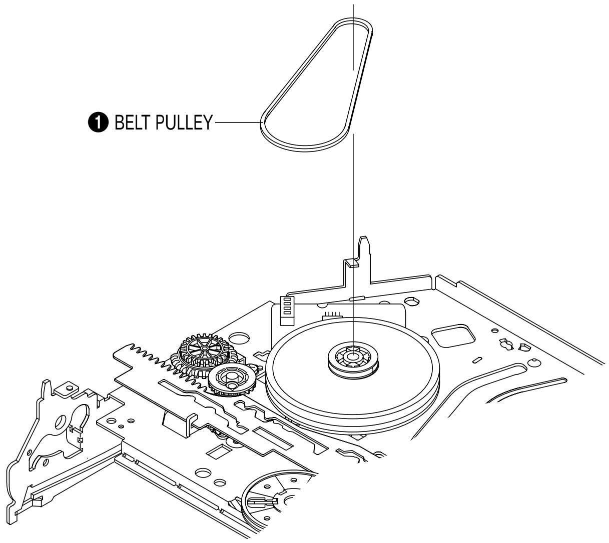

❶ BELT PULLEY

Fig. 1-30 Belt Pulley Removal

1-2-25 Level Head Cleaner Ass’y Removal

1) Release the Hook ❶.
2) Lift the Lever Head Cleaner Ass’y ❷.

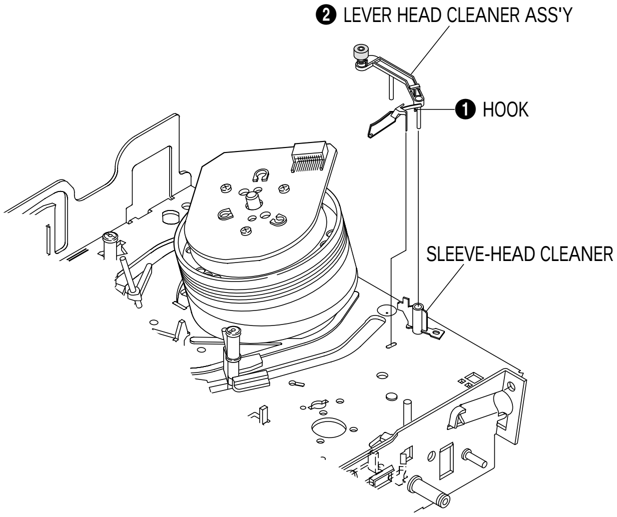

❷ LEVER HEAD CLEANER ASS'Y
❶ HOOK
SLEEVE-HEAD CLEANER

Fig. 1-31 Level Head Cleaner Ass’y Removal

1-2-26 Damper Capstan, Motor Capstan Ass’y Removal

1) Remove the Damper Capstan ❶ in the direction of arrow.
2) Remove the 3 Screws ❷.
3) Remove the Motor Capstan Ass’y ❸.

Assembly :
1) Match the 3 holes of Motor Capstan Ass’y ❸ to the 3 holes of Main Base. Be careful not to drop or knock the Motor Capstan Ass'y ❸.
2) Tighten the 3 Screws ❷ in the direction of arrow as shown detail drawing.
3) Assemble the Damper Capstan ❶.

Note : After tightening screws, check if there is gap between the head of screws and the top side of Main Base. There should have no gap between the head of screws and the top side of Main Base.
After reinstalling, adjusting the tape transport system again.

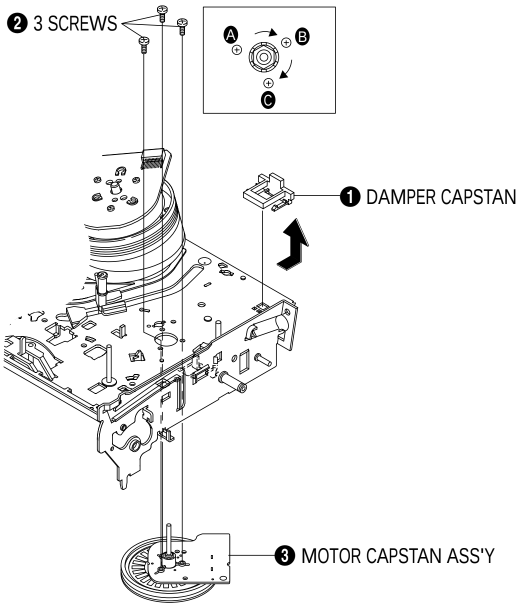


Fig. 1-32 Damper Capstan,Motor Capstan Ass’y Removal

1-2-27 How to Eject the Cassette Tape (If the unit does not operate on condition that is inserted into housing ass’y)

1) Turn the Gear worm ❶ clockwise with screw driver. (Refer to arrow)
(Other method : Remove the Screw of Motor Load Ass'y, Separate the Motor Load Ass'y)

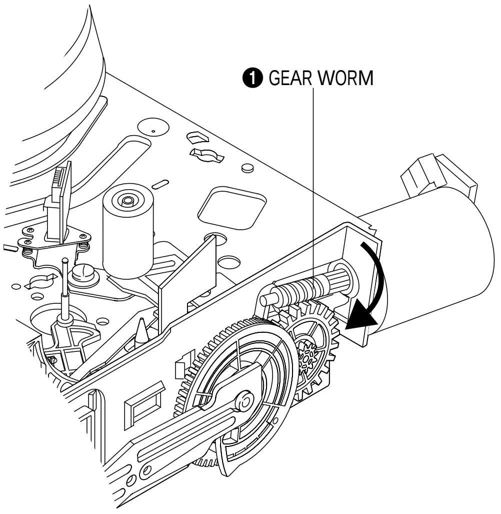


Fig. 1-33

2) When Slider S,T are approched in the position of unloading, rotate holder Clutch counterclockwise after inserting screw driver in the hole of frame's bottom in order to wind the unwinded tape. (Refer to Fig.1-34)
(If you rotate Gear Worm ❶ continuously when tape is in state of unwinding, you may cause a tape contamination by grease and tape damage. Be sure to wind the unwinded tape in the state of set horizently.)
3) Rotate Gear Worm ❶ clockwise using screw driver again up to the state of eject mode and then pick out the tape.(Refer to Fig.1-33)

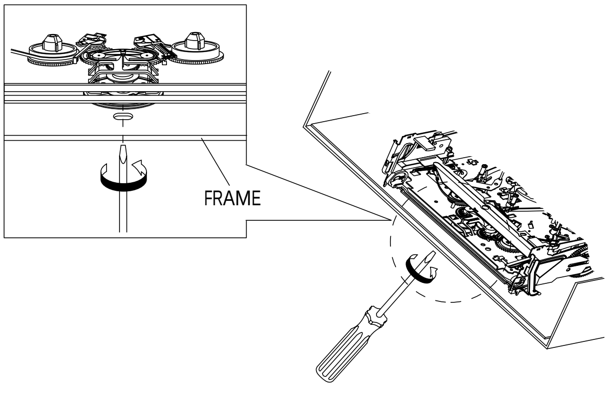


Fig. 1-34

1-3 The table of clearing, Lubrication and replacement time about principal parts

1) The replacement time of parts is not life of parts.
2) The table 1-1 is that the VCR Set is in normal condition (normal temperature, normal humidity).
The checking period may be changed owing to the condition of use, runtime and environmental conditions.
3) Life of the Cylinder Ass’y is depend on the condition of use.
4) See exploded view for location of each parts.

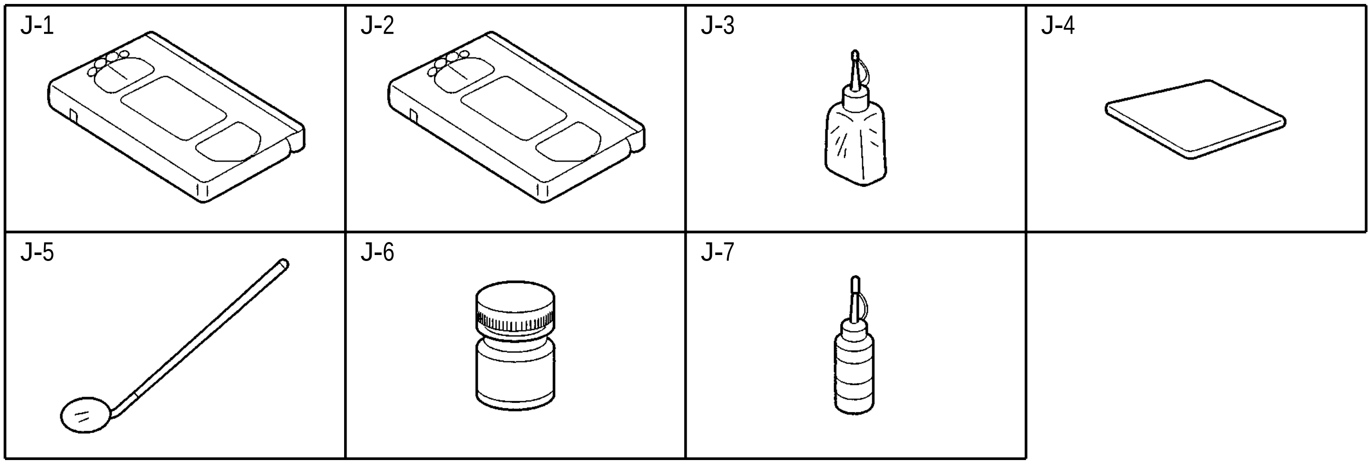
<Table 1-1>

*	Parts Name	Checking Period										Remark
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
TAPE PATH SYSTEM	POST TENSION	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	- To clean the parts, use patch and alcohol (solvent). - After cleaning, use the video tape after alcohol is gone away completely. - We recommend to use oil [NT-68] or solvent. - One or two drops of oil should be applied after cleaning with alcohol.
	SLANT POST S, T	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#8 GUIDE SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	CAPSTAN SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#9 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#3 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	GUIDE ROLLER S, T	Δ	Δ	Δ	O	O	O	O	O	O	O	
	CYLINDER ASS’Y	Δ	O	O	O	O	O	O	O	O	O	
	FE HEAD	Δ	Δ	Δ	O	O	O	O	O	O	O	
	ACE HEAD	Δ	O	O	O	O	O	O	O	O	O	
	PINCH ROLLER	Δ	O	O	O	O	O	O	O	O	O	
	POST REEL S, T		◆		◆		◆		◆		◆	- Periodic time of applying oil (Apply oil after cleaning) - The excessive applying oil may be the cause of malfunction.
	SLEEVE TENSION		◆		◆		◆		◆		◆	
	POST CENTER		◆		◆		◆		◆		◆	
	LEVER IDLE BOSS (2Point)		◆		◆		◆		◆		◆	
DRIVING SYSTEM	CAPSTAN MOTOR PULLEY	Δ	Δ	Δ	Δ	Δ	O	O	O	O	O	
	BELT PULLEY				O	O	O	O	O	O	O	
	HOLDER CLUTCH ASS’Y	Δ	O	O	O	O	O	O	O	O	O	
	GEAR CENTER ASS’Y		O	O	O	O	O	O	O	O	O	
	GEAR IDLE (2Point)		O	O	O	O	O	O	O	O	O	
	LOADING MOTOR		O	O	O	O	O	O	O	O	O	
BRAKE SYSTEM	BAND BRAKE ASS’Y		O	O	O	O	O	O	O	O	O	
	BRAKE T ASS’Y		O	O	O	O	O	O	O	O	O	

Δ : Cleaning   O : Check and replacement in necessary   ◆ : Add Oil

1-4 Tools and fixtures reguired for service

Ref. No.	Name		Part No.	Caved Jig No.	Remarks
J-1	Torque Measurement Cassette VHT-103S		J-6090-072-A		For FWD & back tension torque measurement
	Torque Measurement Cassette VHT-404S		J-6082-012-A		For CUE and REVIEW torque measurement
J-2	Alignment Tape	KRV-52NE (NTSC)	8-192-605-41		Tape path, Audio azimuth, X-value adjustments
		KRV-51N2 (NTSC)	8-192-605-32		Electrical adjustments, Operation check
		KRV-52PL (PAL)	8-192-605-46		Tape path, Audio azimuth, X-value adjustments
		KRV-51P (PAL)	8-192-605-36		Electrical adjustments, Operation check
J-3	Cleaning Fluid		Y-2031-001-0	—	
J-4	Chamois Leather		2-034-697-00	—	
J-5	Dental Mirror (with Handle)		J-6080-029-A	SL-5052	Tape path and tape traveling adjustments or checks
	Dental Mirror (Mirror)		J-6080-030-1		
J-6	Grease Molykote EM 30LG		J-6090-014-A		Net. 20 g
J-6	Diamond Oil NT-68		7-661-018-18		



<Fig 1-35>

2. Alignment and Adjustment

2-1 Tape Transport System and Adjustment Locations

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :

1) Noise observed on the screen.
2) Tape damage.
3) Parts replacement in the tape transport system.

Lower flange height of tape guide is used as the reference for the transport adjustment.
To maintain the height of the tape guide and prevent damage, do not apply excessive force onto the main base.

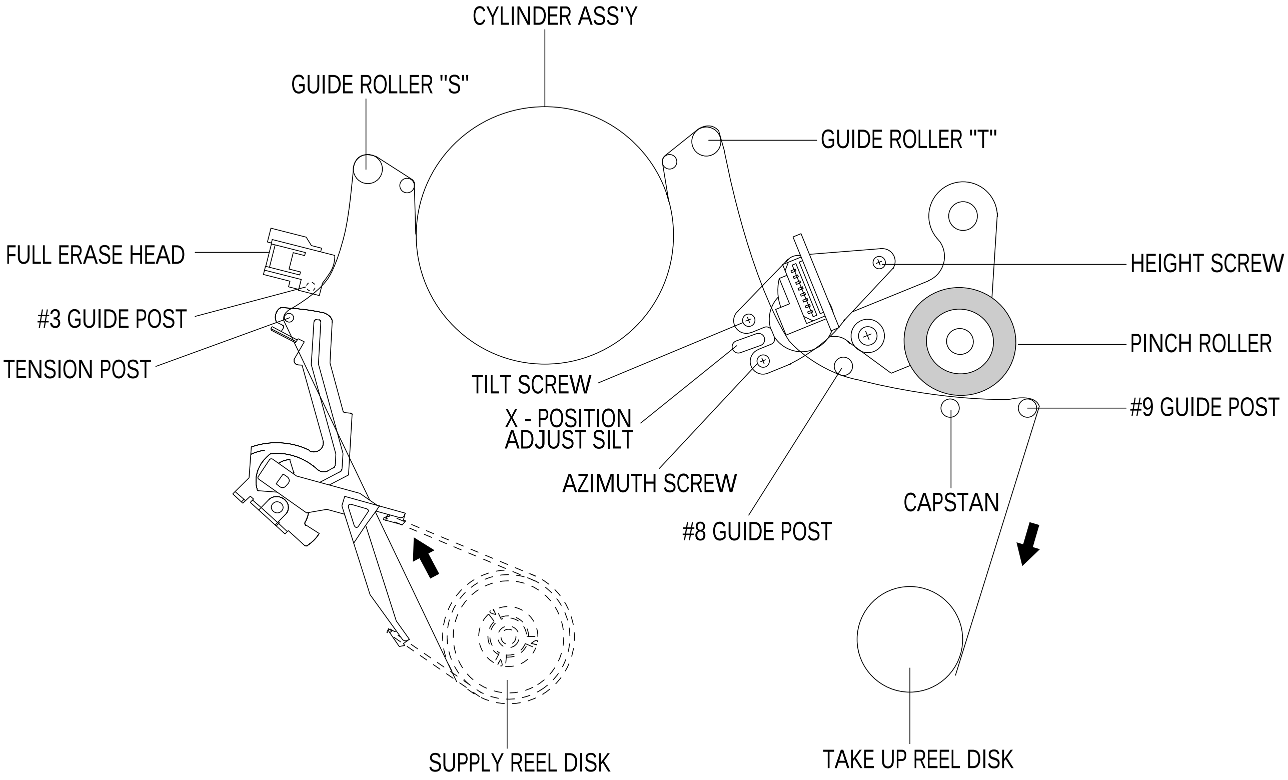

CYLINDER ASS'Y
GUIDE ROLLER "S"
GUIDE ROLLER "T"
FULL ERASE HEAD
HEIGHT SCREW
#3 GUIDE POST
PINCH ROLLER
TENSION POST
TILT SCREW
X - POSITION ADJUST SILT
#9 GUIDE POST
AZIMUTH SCREW
CAPSTAN
#8 GUIDE POST
SUPPLY REEL DISK
TAKE UP REEL DISK

Fig. 2-1 Location of Tape Transport Adjustment

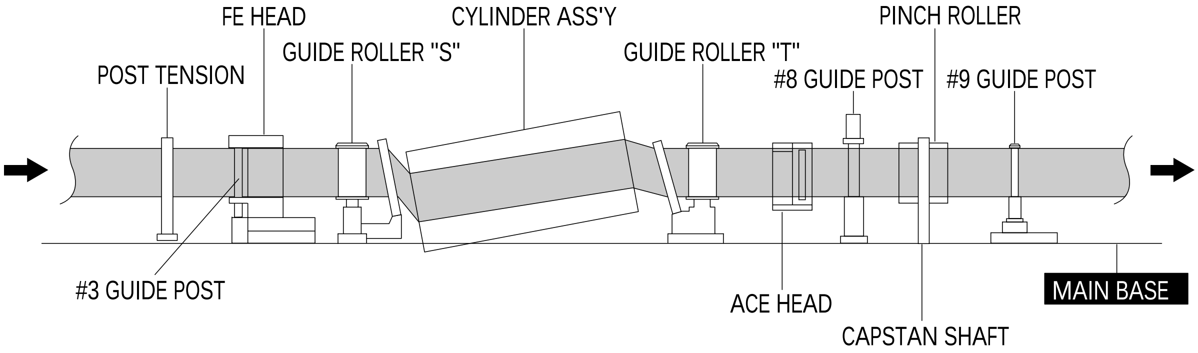

FE HEAD
CYLINDER ASS'Y
PINCH ROLLER
GUIDE ROLLER "S"
GUIDE ROLLER "T"
POST TENSION
#8 GUIDE POST
#9 GUIDE POST
#3 GUIDE POST
ACE HEAD
MAIN BASE
CAPSTAN SHAFT

Fig. 2-2 Tape Travel Diagram

2-2 Tape Transport System Adjustment

When parts are replaced, perform the required adjustments by referring to procedures for the tape transport system. If there are any changes to the tape path, first run a T-120 tape and make sure excessive tape wrinkle does not occur at the tape guides.

1) If tape wrinkle is observed at the guide roller S, T, turn the guide roller S, T until wrinkle disappears.
2) If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the ACE head. (See page 5-3 of the Service Manual for Test Point Locations.)

2-2-1 ACE Head Assembly Adjustment

2-2-1(a) ACE HEAD HEIGHT ADJUSTMENT

1) Run the alignment tape (KRV-52NE (NTSC) / 52PL (PAL)) in the playback mode.
2) Observe surface of the audio head using a dental mirror.
3) Turn screw (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25mm. (Refer to Fig. 2-3 and 2-4)

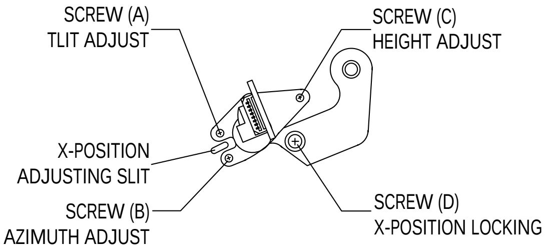


Fig. 2-3 Location of ACE Head Adjustment Screw

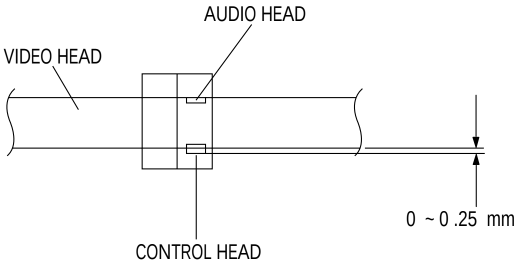


Fig. 2-4 ACE Head Height Adjustment

2-2-1(b) ACE HEAD TILT ADJUSTMENT

1) Playback a blank tape and observe the position of the tape at the lower flange of tape guide.
2) Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 2-5 (B).
3) If a curl or wrinkle of the tape occurs, slightly turn the screw (A) tilt adjust on the ACE head ass'y.
4) Reconfirm the ACE head height.

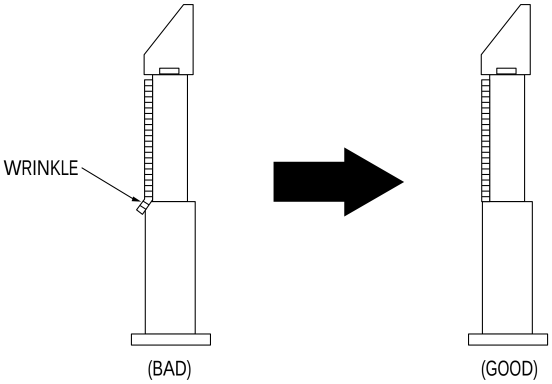


Fig. 2-5 Tape Guide Check

2-2-1(c) AUDIO AZIMUTH ADJUSTMENT

1) Load alignment tape (KRV-52NE (NTSC) / 52PL (PAL)) and playback the NTSC : 5KHz (PAL : 4KHz) signal.
2) Connect channel-1 scope probe to audio output test point.
3) Adjust screw (B) to achieve maximum audio level. (See Fig. 2-3)

2-2-1(d) ACE HEAD POSITION (X-POINT) ADJUSTMENT

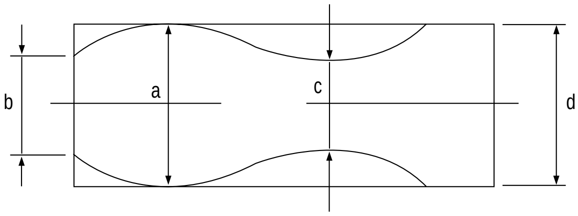
1) See "2. Alignment and Adjustment" for ACE Head position (X-Point) adjustment.

2-2-2 Linearity Adjustment (Guide roller S, T adjustment)

1) Playback the alignment tape (KRV-51N2 (NTSC) / 51P (PAL)) (SP mode, Mono Scope).
2) Observe the video envelope signal on an oscilloscope (triggered by the video switching pulse).
3) Make sure the video envelope waveform (at its minimum) meets the specification shown in Fig. 2-6.
   If it does not, adjust as follows :

Note :
a=Maximum output of the video RF envelope.
b=Minimum output of the video RF envelope at the entrance side.
c=Minimum output of the video RF envelope at the center point.
d=Maximum output of the video RF envelope at the exit side.

4) If the section A in Fig. 2-7 does not meet the specification, adjust the guide roller S up or down.
5) If the section B in Fig. 2-7 does not meet the specification, adjust the guide roller T up or down.



a b c d
c,b,d/a ≧63%

Fig. 2-6 Envelope Waveform Adjustment

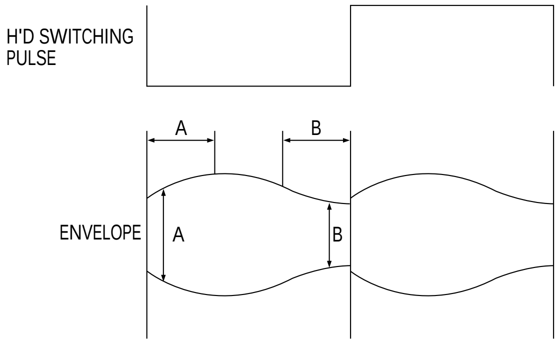

H'D SWITCHING PULSE
A
B
ENVELOPE
A
B

Fig. 2-7 Adjustment Points

6) Play back the alignment tape (SP mode, Mono Scope).
7) Connect an oscilloscope CH-1 to the Envelope and CH-2 to the H’D SW Pulse for triggering.
8) Turn the guide roller heads with a flat head (▬) driver to obtain a flat video RF envelope as shown in Fig. 2-8.

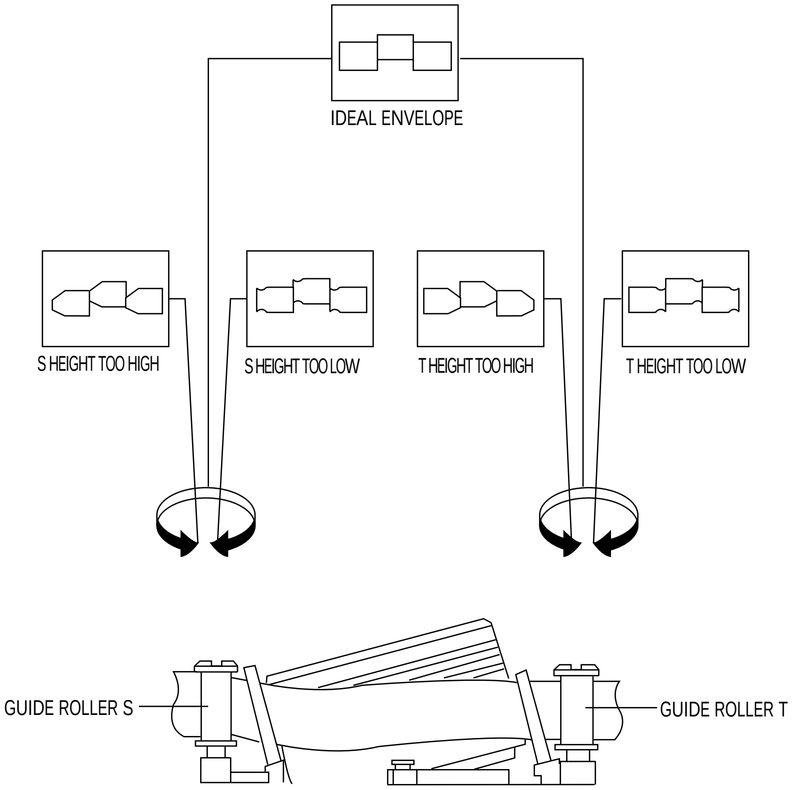

IDEAL ENVELOPE
S HEIGHT TOO HIGH
S HEIGHT TOO LOW
T HEIGHT TOO HIGH
T HEIGHT TOO LOW
GUIDE ROLLER S
GUIDE ROLLER T

Fig. 2-8 Guide Roller S, T Height Adjustment

2-2-3 Check Transitional Operation from RPS to Play

Check transition from RPS mode to play mode : Using a pre-recorded SP tape, make sure the entry side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 2-9).
If the envelope waveform does not reach specified peak-to peak amplitude within 3 seconds, adjust as follows :

1) Make sure there is no gap between the supply roller lower flange and the tape.
   If there is a gap, adjust the supply guide roller again.
2) Change operation mode from the RPS to the play mode (again) and make sure the entry side of envelope rises within 3 second.

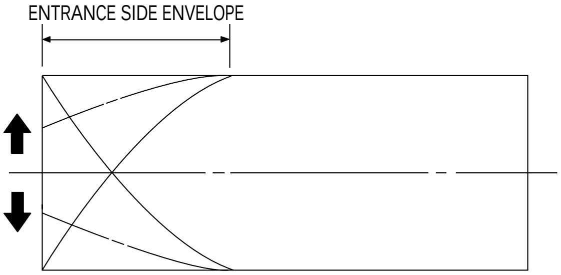


Fig. 2-9 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

2-2-4 Envelope Check

1) Make recordings on T-120 (E-120) and T-160 (E-180) tape.
   Make sure the playback output envelope meets the specification as shown in Fig. 2-10.
2) Play back a self recorded tape (recording made on the unit using with T-120 (E-120).
   The video envelope should meet the specification as shown in Fig. 2-10.
   In SP mode, (A) should equal (B).
   If the head gap is wide, upper cylinder should be checked.

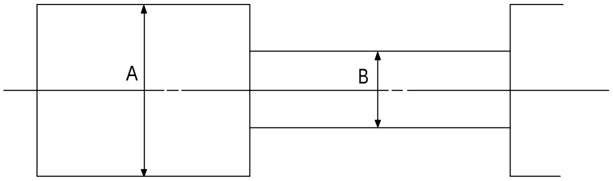


Fig. 2-10 Envelope Output and Output Level

2-2-5 Tape Wrinkle Check

1) Run the T-160 (E-180) tape in the playback, FPS, RPS and Pause modes and observe tape wrinkle at each guide.
2) If excessive tape wrinkle is observed, perform the following adjustments in Playback mode :

◆ Tape wrinkle at the guide roller S, T section : Linearity adjustment.
◆ Tape wrinkle at tape guide flange : ACE head assembly coarse adjustment.

2-3 Reel Torque

1) The rotation of the capstan motor causes the Holder Clutch Ass'y to rotate through the Belt Pulley.
2) The spring wrap PLAY/REV of holder clutch ass'y drives the disk reel S, T through gear idle by rotation of gear center ass'y.
3) Brake is operated by slider cam at FF/REW mode.
4) Transportation of accurate driving force is done by gears. (Gear Center Ass'y)

Note : If the spec. does not meet the followings specifications, replace the holder clutch ass'y and then recheck.

<Table 2-1>

MODE	TORQUE g/cm	GAUGE
PB	42 ± 11	Cassette Torquemeter
RPS	145 ± 30	Cassette Torquemeter

9-921-790-11

Sony Corporation
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